Textile World

AUGUST
1960

PRICE
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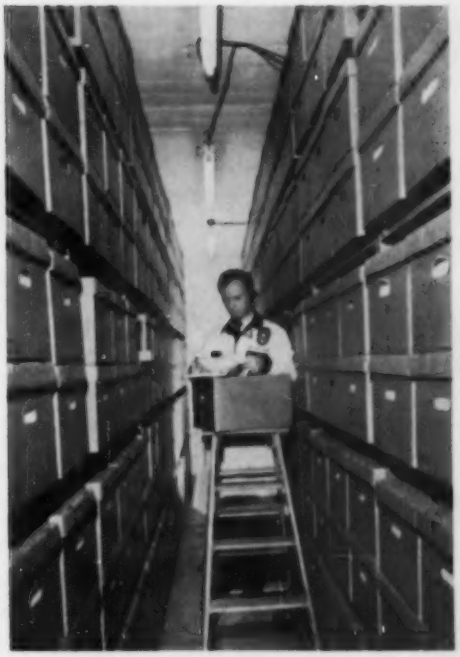
What to Do About Those Management Records

...page 26



1960 TABLE OF MAN-MADE FIBERS

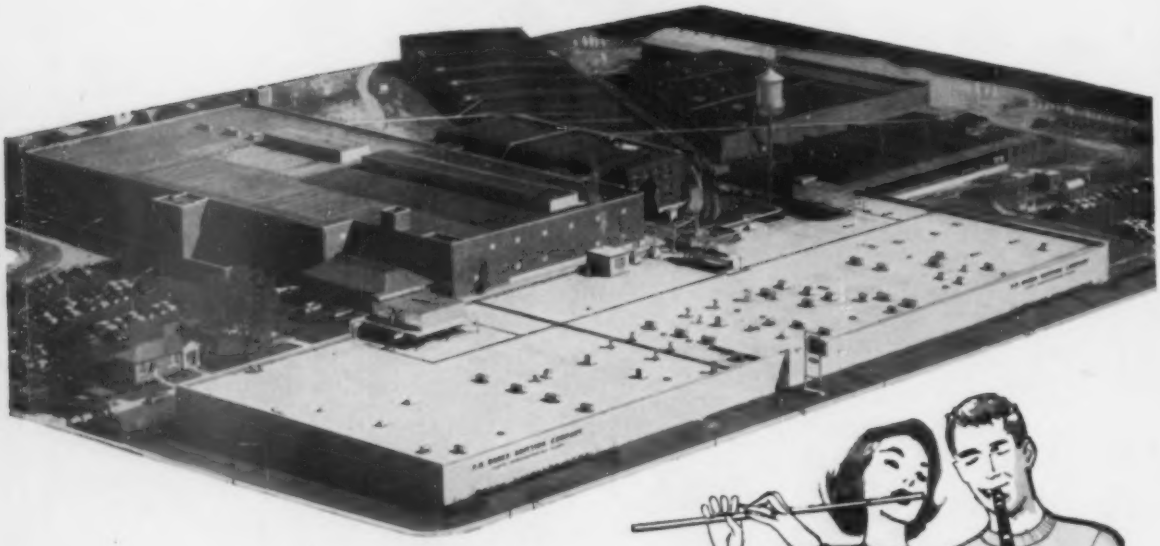
Precise, up-to-date data on the 12 newest fibers to come of age: Avril and Avlin; Corval and Topel; Zantrel; Arnel 60; Vycron and Fortrel; Lycra and Vyrene; Rhovyl and Merinova. See the complete table : page 37

How Two Companies Team Up to Produce a Fast-Moving Product... page 52

A McGRAW-HILL PUBLICATION

NEW WINSTON SALEM PLANT

PRODUCES FABRICS FOR HANES *Knitwear for the family*



When the P. H. Hanes Knitting Company faced the problem of increasing production to meet the growing demand for their "Knitwear for the Family," Robert and Company Associates were called on to make a thorough study of Hanes' present facilities. Finding existing facilities inadequate for additional production, a new plant adjacent to Hanes' yarn mill in Winston-Salem was recommended.

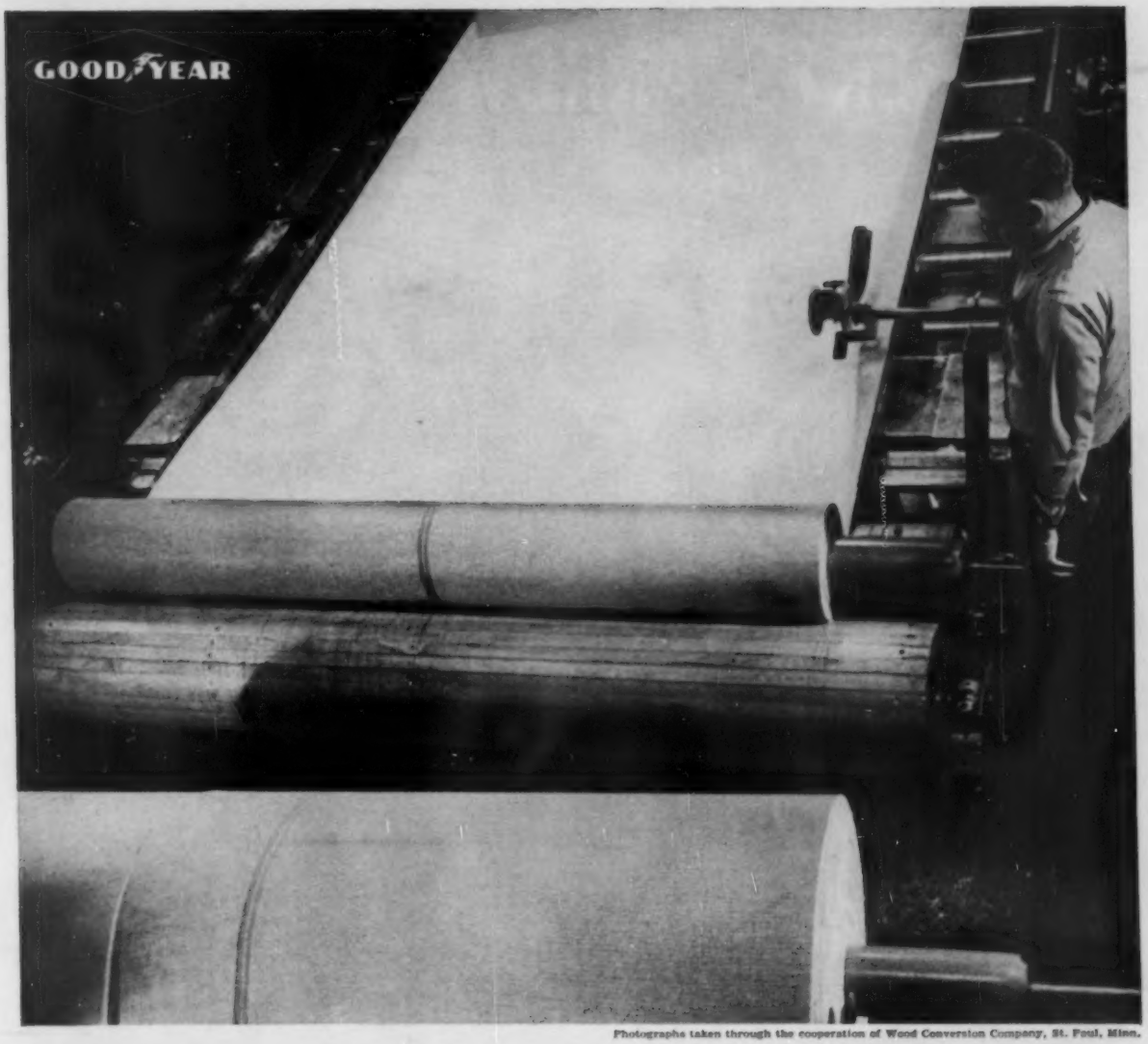
This modern, 126,000 square foot plant, complete with power plant, central station humidification and air conditioned offices is intregrated with the existing yarn mill. The combined operation includes facilities for spinning, winding, yarn storage and conditioning, knitting, cloth storage, bleaching, dyeing, finishing and shipping.

If your plans call for increased productivity and efficiency, draw on Robert and Company Associates' 42 years of experience in serving the great names of the textile industry.

ROBERT AND COMPANY ASSOCIATES

Textile Engineering Division

ATLANTA



Photographs taken through the cooperation of Wood Conversion Company, St. Paul, Minn.

Post another "net" gain for CHEMIGUM LATEX!

A more durable spring insulator, or pad backing, was what this cellulose cushioning manufacturer was looking for.

He achieved it, easily and economically, by rubberizing the high-quality cotton net back of the high-quality cushioning with CHEMIGUM LATEX. This not only improved its strength and wear-resistance substantially, but provided a nonskid surface which also is important to cushioning durability. CHEMIGUM LATEX was chosen for its superiority in these properties plus its ease of processing, particularly in the calendering operation.

What can your product gain from CHEMIGUM LATEX? Find out by writing for details, including the latest *Tech Book Bulletins,* to Goodyear, Chemical Division, Dept. T-9433, Akron 16, Ohio.

Lots of good things come from

GOODYEAR

CHEMICAL DIVISION

Chemigum–T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

ROBERTS ARROW SPINNING

Spindle Speeds Over 13,000!

One of the most frequent questions asked today concerns high spindle speeds. The answer comes from many of the 850 Roberts Arrow Spinning Frames running in leading mills since 1956. Three examples are shown at the right.

The new and refined Arrow compares advantageously with all other all-ball-bearing frames and greatly outperforms all conventional and standard-type spinning frames. The Arrow offers the greatest dollar-for-dollar-value against any other make of frame in dependable performance, lowest initial cost, and maintenance-free operation.

Arrow Spinning is available for either the cotton or the worsted system for natural or man-made fibers or blends.

3 MILLS RUNNING ARROW FRAMES AT 12,300 to 13,200 R.P.M.

- **A major sheet manufacturer runs 36's warp yarn with 2" ring at 12,300 r.p.m. spindle speed on 44 Arrow frames.**
- **A major manufacturer of Dacron-cotton fabrics runs 50's on 66 Arrow frames with a 1-7/8" ring at 13,200 r.p.m. spindle speed.**
- **A major broadcloth manufacturer using 96 Arrow frames makes 40's with a 1-13/16" ring at 12,800 r.p.m. spindle speed.**

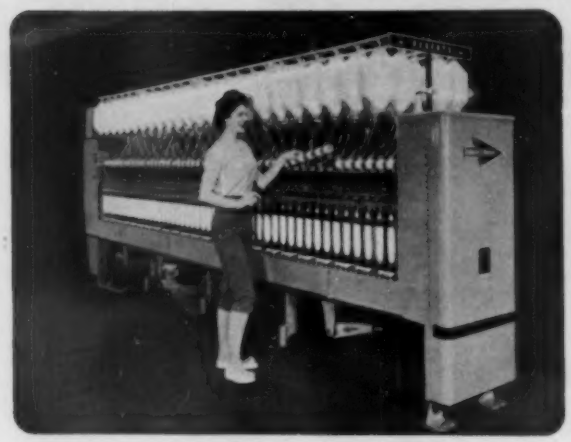
ROBERTS COMPANY

SANFORD, NORTH CAROLINA

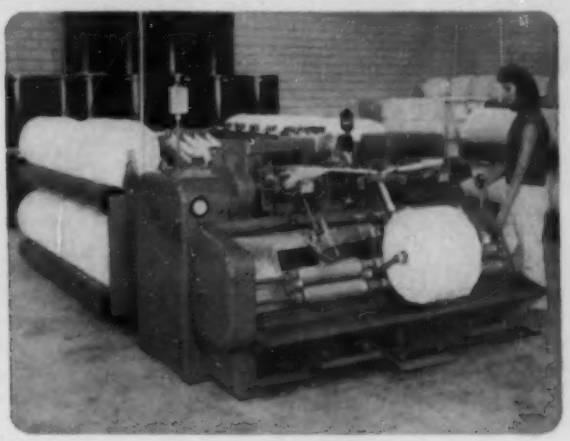
ROBERTS

YARN MAKING MACHINERY

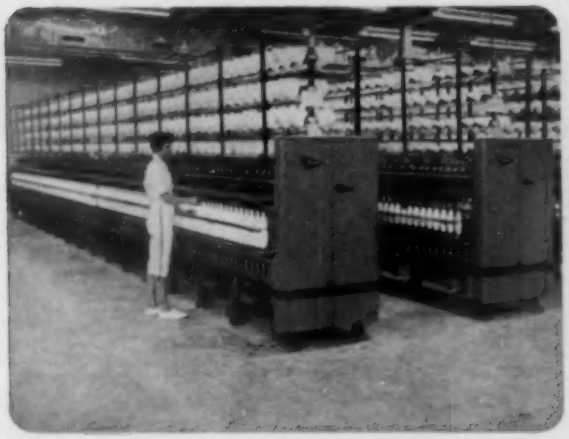
for Cotton, Worsted, or Long Fiber Systems



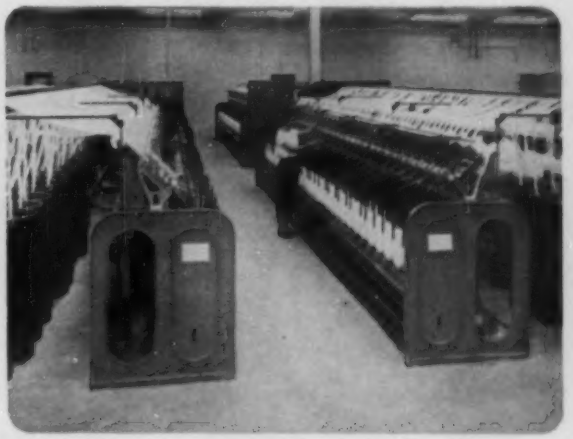
ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 3½-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ¾ to 1 pound on worsted.



ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

Simplicity of design, rugged construction and high speed ball bearing operation are the trade marks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization change-overs for mills' existing machinery.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

Textile World

VOLUME 110, NO. 8 AUGUST, 1960

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Coming Next Month:
Preventive Maintenance
What It Is . . . How It Works

Suppose you start up your mill this Monday morning with the assurance that it will run right on through this week — and next, and the one after that — without a single mechanical breakdown? Sounds impossible, you say? Well, it isn't. And if you need proof, listen to the men from Chatham Mfg. Co., in Elkin, N.C., who'll tell you flat out that preventive maintenance is just about the best thing that ever happened to them. Read how Chatham boosts production 18%, saves on labor time, trims costs all around. Watch for September's TEXTILE WORLD.

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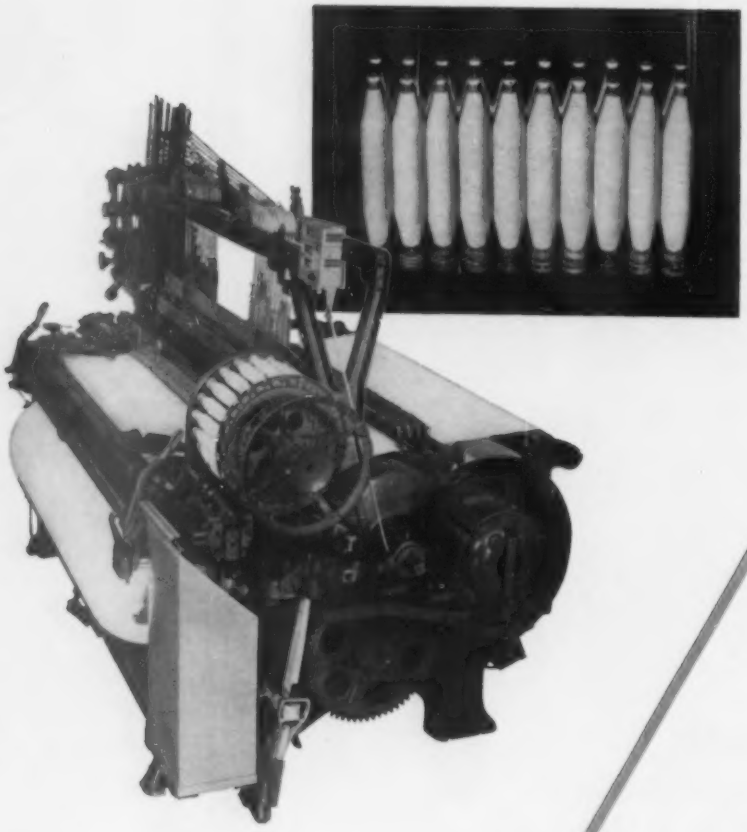
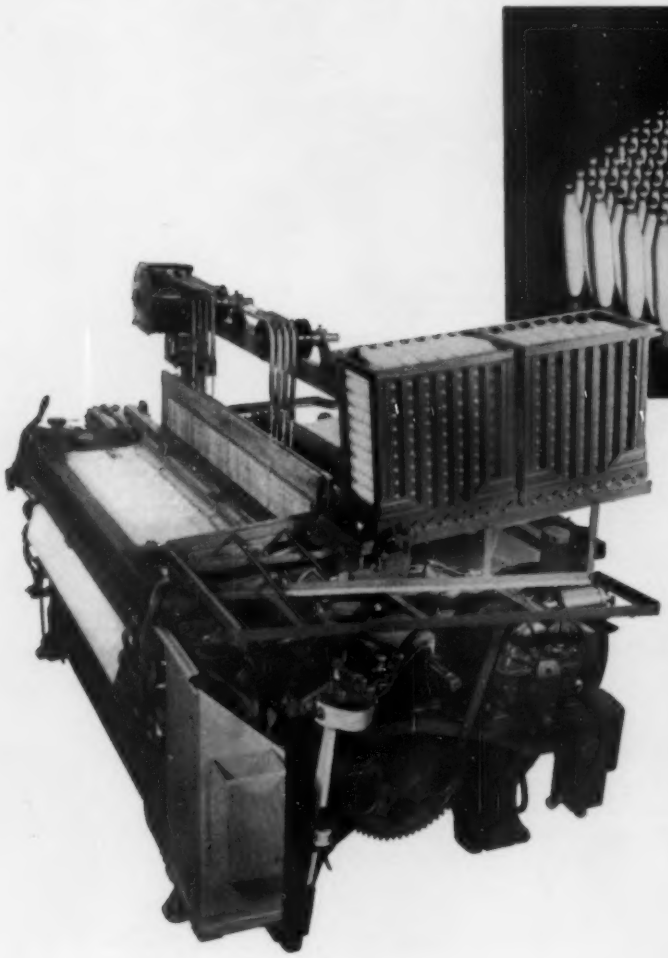
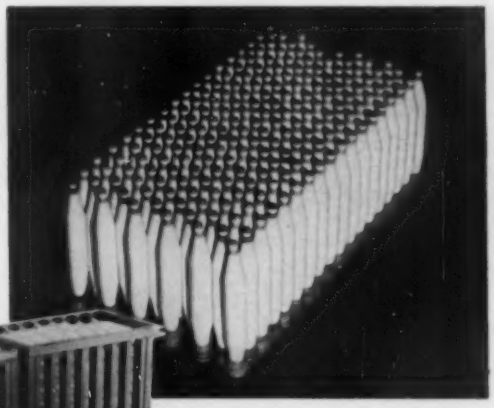


TO A MINIMUM





The Draper Automatic Filling Magazine *with a bobbin supply of as many as 192 bobbins** reduces weave room costs.

This increased bobbin capacity, over the conventional Rotary Battery *eliminates much of the cost of delivering filling yarn to the loom.* More continuous loom operation, cleaner yarns and fewer cloth seconds are also direct advantages gained from the use of this magazine.

Compare the Draper Automatic Filling Magazine with the conventional battery and see for yourself the many benefits that can be obtained.

For additional information consult your Draper representative.

**1¼" diameter bobbins*

D

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.

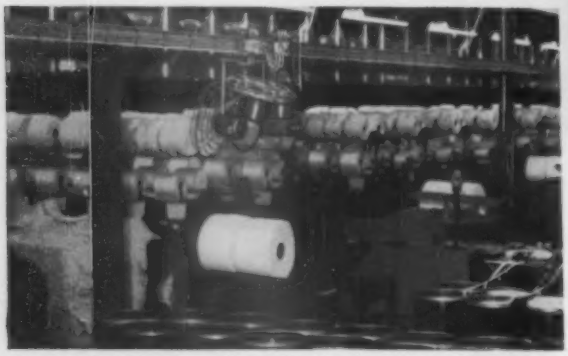
Now...keep your work areas clean automatically, with specially designed Amco Cleaners!

Amco has developed a wide selection of automatic cleaning equipment . . . designed to cut down manual cleaning, improve quality, and step up mill production.

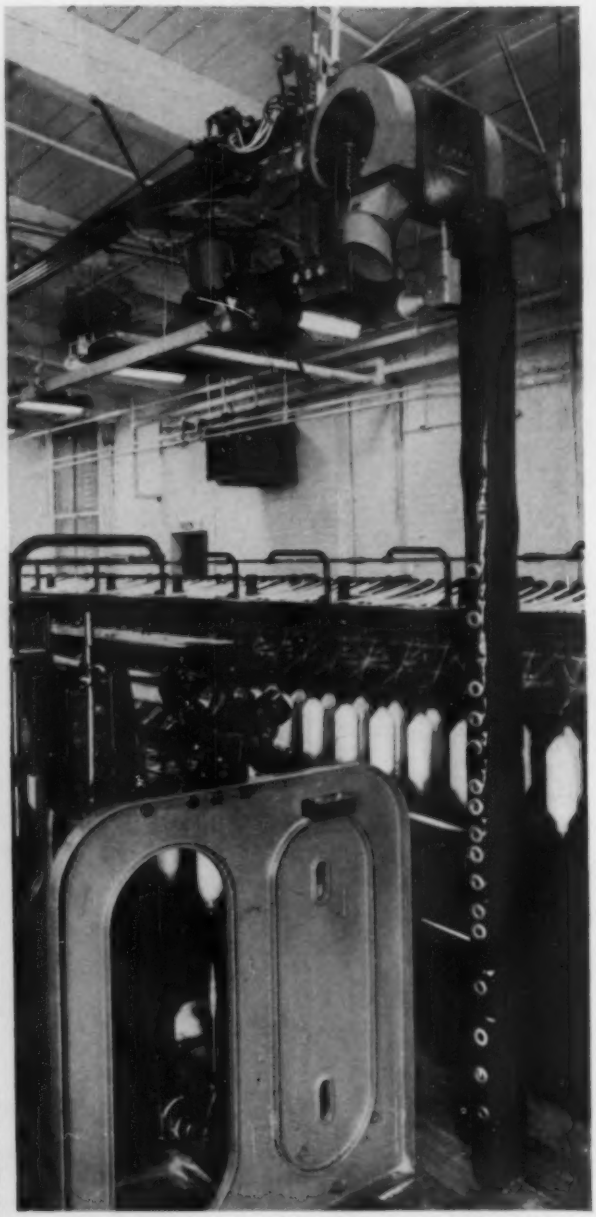
For money-saving facts about Amco Cleaners, call American Moistening Company — an organization with more than 70 years' experience serving the textile field.

Helicone Loom Cleaners improve quality of fabrics by preventing waste accumulation on stop motions, drop wires, harnesses and reed caps.

Amco Loom Cleaners over Draper shuttleless looms. Sheeting is being woven at high relative humidity.



Amco Ceiling Cleaner provides automatic cleaning of ceiling, beams, walls and other surfaces. Excellent for card room areas.



Amco's electronically controlled Roving Frame and Ceiling Cleaner. Air delivery boot takes care of specific lint-collecting trouble spots.

AMCO

SINCE 1888

Air Conditioning Equipment — Textile Specialties

American Moistening Company, Cleveland, North Carolina

Branches: Atlanta, Ga., Providence, R. I., Toronto, Ont.

Get 2-fisted savings with Nacconol NR Flake!

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Our nearest office will be pleased to send you samples of NACCONOL NR and other forms of NACCONOL recommended for textile use.

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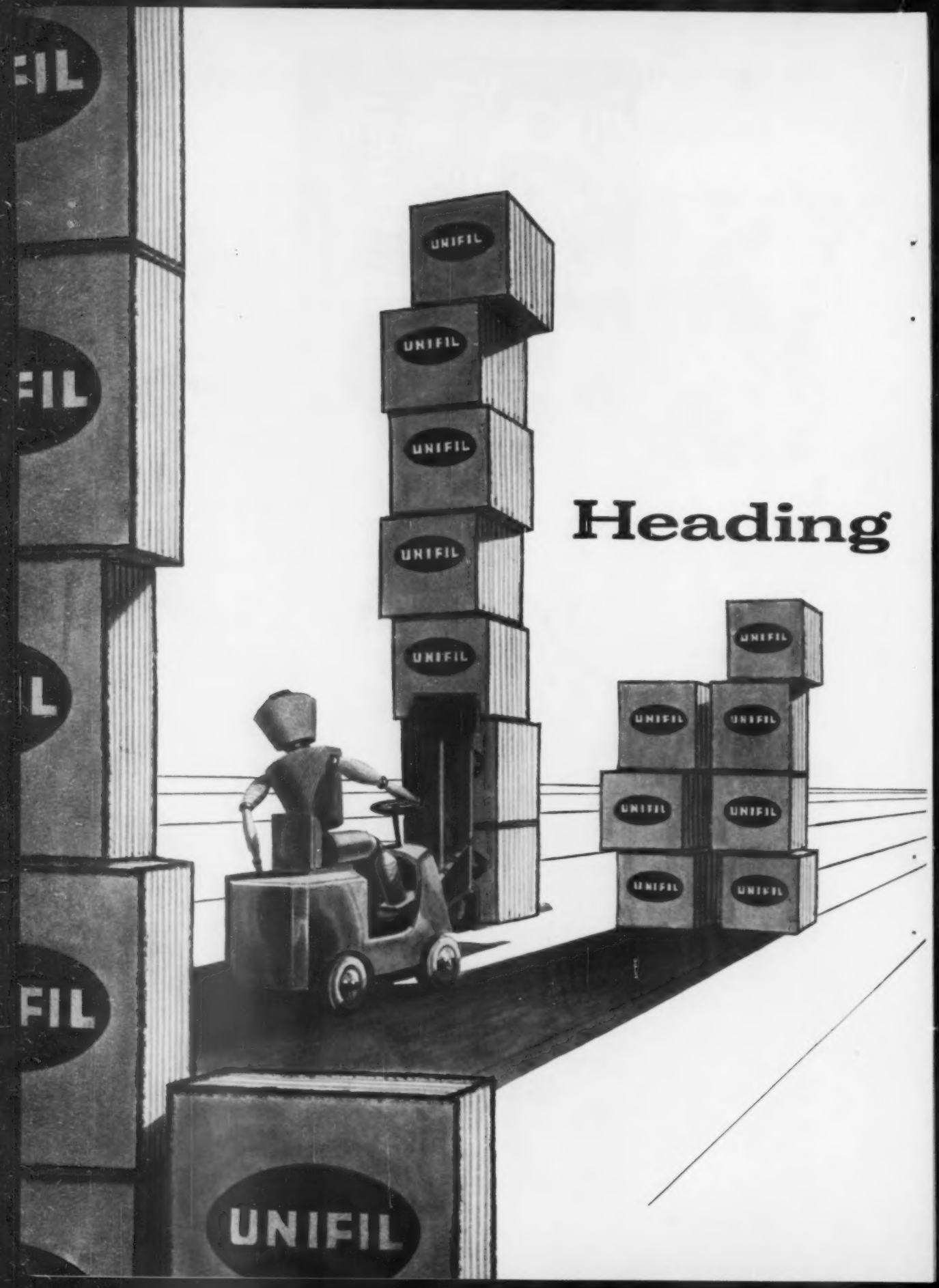
UNIFIL
UNIFIL
UNIFIL

Imaginative weavers everywhere are utilizing the outstanding performance which only UNIFIL® Loom Winders provide. Using this advanced, highly versatile method of filling yarn preparation, they're creating excitingly new fabrics . . . opening brand-new markets. With cotton . . . synthetics . . . textured yarns they're producing an infinite variety of hand, patterns, and surface effects with a uniformity never before achieved.

In many of these progressive mills, a Leesona Sales Engineer showed the way. By carefully evaluating *existing* methods and machinery for filling yarn preparation, he indicated how installation of UNIFIL Loom Winders would make possible *better* diversification and economy in production. And, in most cases, his estimates proved *conservative* when UNIFIL Loom Winders actually began producing. Naturally mills reordered fast!

Why not get all the advantages of weaving-from-a-cone in your mill? Bring the entire process of filling yarn preparation right to the loom . . . with UNIFIL Loom Winders. Take the first step *now* with a "Profit Factor Analysis." Ask your Leesona Sales Engineer in Boston, Philadelphia, Charlotte, Atlanta, or Los Angeles. In Canada: Montreal or Hamilton. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island.

For Looms Of Imagination...

Here are just a few of many modern mills which are saving with UNIFIL Loom Winders:

J. P. STEVENS & CO., INC.
PONEMAH MILLS
DRAYTON MILLS
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GLEN RAVEN SILK MILLS, INC.
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LEESONA

23.9.20

CIRCLE 11 ON READER SERVICE CARD

FOR BETTER MILL PERFORMANCE AND YARN QUALITY, BLEND COTTON BY DENSITY THROUGH WEIGH PANS

NOW AVAILABLE

An economical CONVERSION of existing opening hoppers to weighing feeders by the addition of a scale mechanism.

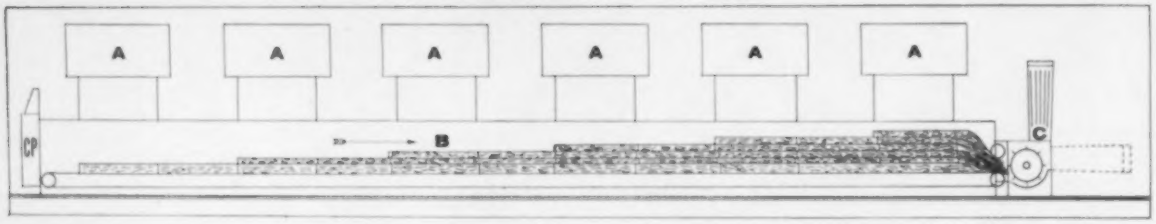
To be ranged with the standard sandwiching SYNCROVEYOR (control panel assembly) and plucking cylinder (the SYNCROBLENDER).

OBJECT . . .

To improve process uniformity and efficiency throughout.

HOW IT IS DONE

Fiber properties can vary widely. Ultimately, the basic yarn evenness requirement is to place *the same number of fibers of each density* (represented by the laydown) in each inch.



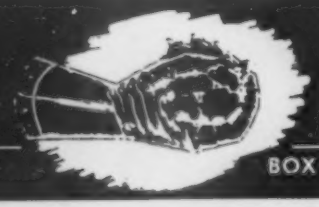
Therefore, consider it "fact" that stock representation per yard of picker lap is *from one bale per hopper* and select and lay down bales accordingly.

Meter consistently predetermined increments of ounces . . of each density (fineness) designation in short term control intervals of seconds. *Handle reworkable waste through one weigh pan.*

No additional floor space, connected horsepower, or labor required for SYNCROMATIC SYSTEM.

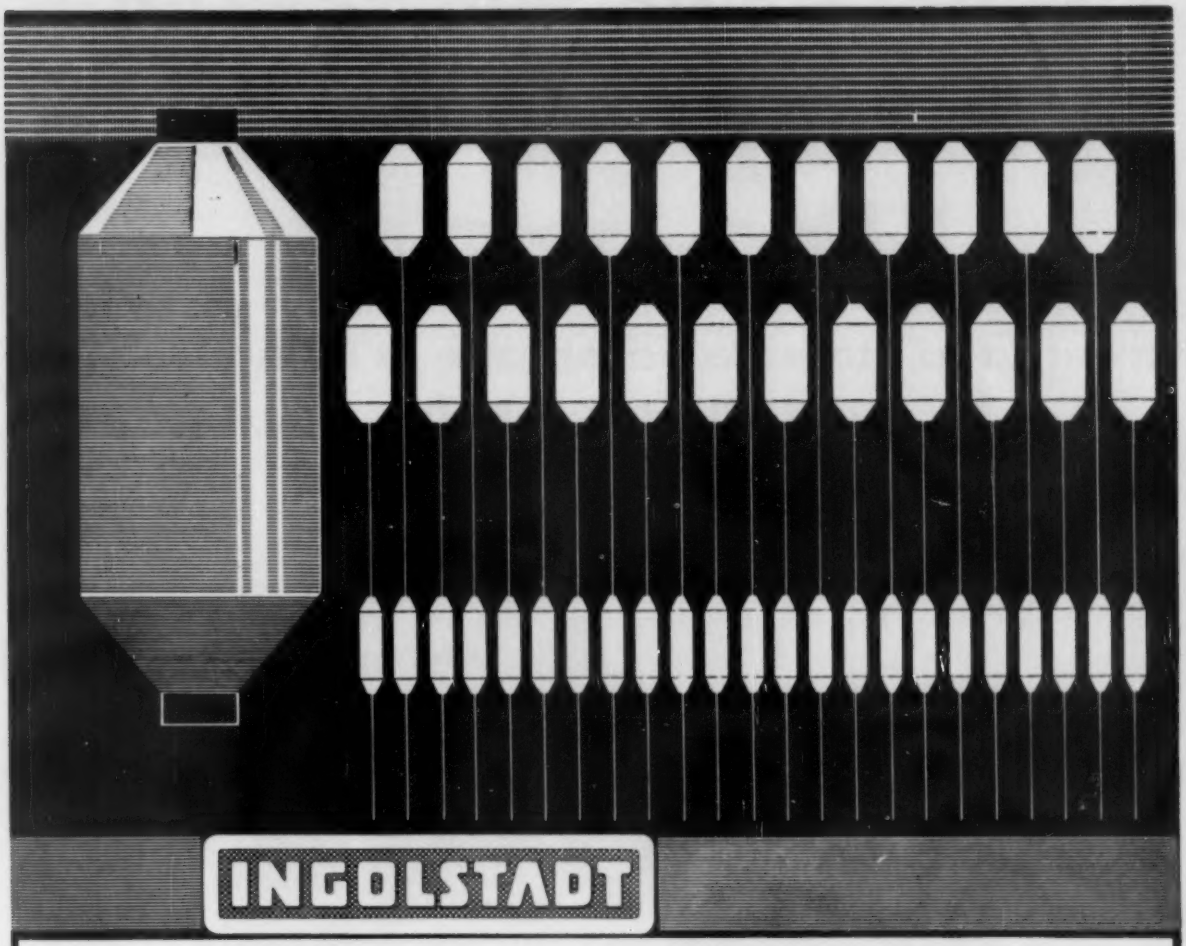
Write or contact us for further and more complete information.

U. S. Sales Agents: PARROTT and BALLENTINE, Inc., 3400 Augusta Road, Greenville, S. C.



FIBER CONTROLS CORPORATION

BOX 1358 *GASTONIA, NORTH CAROLINA*



Planning and supply

of complete spinning plants for cotton, worsted,

artificial and synthetic staple fibres

DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT/Donau

ANNOUNCING THE TEXACO "Stop Loss" Program

Created to starve a scrap pile at its source . . . and all it represents ★

★ **Bearings ruined** before their time by improper lubrication

★ **Downtime** caused by a man with the wrong grease gun

★ **Lubricants wasted** by over-lubrication

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

Even though your mill is *already* an efficient operation, a Texaco "Stop Loss" Program can yield important savings in maintenance, production, purchasing and inventory.

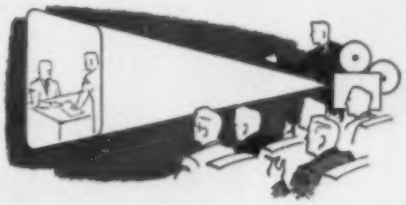
What it is; why it will work for you. The Texaco "Stop Loss" Program is a complete package specifically designed to modernize your lubrication practices—to keep pace with your updated production and marketing procedures. "Stop Loss" is based on our years of experience in organizing lubrication in industry.

If yours is an average mill, the adoption of this program will actually show up on your profit sheet. That's because the savings from "Stop Loss" go *directly* into net profits.

Lubrication, far from being an expense item, is actually one of your most effective cost control tools!

HERE'S WHAT YOU NEED TO HELP STARVE YOUR SCRAP PILE

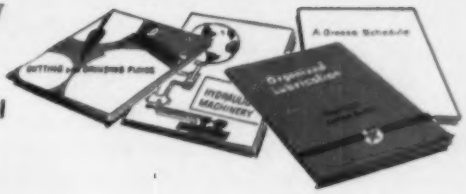
These components of the Texaco "Stop Loss" Program are available to interested mill groups:



1. New 20-minute sound-color film "Stop Loss with Organized Lubrication"—created to show the many opportunities for cost control through organized lubrication practices.

2. A Lubrication Control System that takes the guesswork out of lubrication scheduling. It costs almost nothing to install, yet can save as much as 15% of your maintenance costs.

3. A film "package" for mill departments. This consists of educational films that cover the selection and application of greases, hydraulic oils, cutting oils, etc.



4. Co-ordinated booklets on the film subjects plus many others that can be used as guides in specific areas.

We believe that a modern Texaco "Stop Loss" Program will produce a package of economies in your mill.

MAKE YOUR RESERVATION TODAY
to see one of the year's most important management movies!

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Canada • Latin America • West Africa

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Index of Textile-Manufacturing Activity
(Man-hours worked, adjusted for changes in productivity 1954=100)
1957
Jan. 108
Feb. 108
Mar. 107
Apr. 107
May 106
June 107
119
July Estimate
124 122 120 118 116 114 112 110 108 106 104 102 100 98 96 94
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1957 1958 1959 1960

Toward a Record

Present indications are pointing toward a gently rising pace of business right through this year. This ought to be enough to carry Textile World's exclusive index of textile-manufacturing activity (above) to a new record level. In June, the index rose to 118, just one point away from the previous record level of 119, which was recorded last October.

•

Foreign trade in textiles now looks better, too. Exports have been rising since January a year ago, and should continue to grow with the growth of economic prosperity abroad. On the other hand, one key to textile imports, a chronic—sometimes painful problem, seems to lie with machinery modernization in this country plus the introduction of new products made possible by textile research and development.

•

In terms of over-all business activity, the latest set of statistics are mixed—some point up, some down, some sideways. But a close look reveals a strong undercurrent of vitality in the economy. The June increase in the number of unemployed Americans resulted from an unusually large influx of students into the job market rather than from any shrinking of job opportunities. In fact, 1.4-million people found new jobs during June —a strong testimonial to the vigor of the economy. And note this: Rising steel production in the coming months will help to boost employment even further.

Figures of the Month

TEXTILE-INDUSTRY INDICATORS

	Latest Month	Previous Month	Year Ago
Textile World's Exclusive Index (chart above)	118.0	117.0	115.2
Employment (thousands)[1]	958.2	956.6	975.2
Production Workers (thousands)[1]	863.6	863.7	883.0
Weekly Earnings[1]	65.69	65.36	64.62
Hourly Earnings[1]	1.63	1.63	1.58
Weekly Hours Worked[1]	40.3	40.1	40.9
Production Index (1947-49=100)[2]	129	128	128
Wholesale Price Index (1947-49=100)[3]	96.3	96.3	95.2
Manufacturers' Sales (million $)[2]	1276*	1259	1310
Manufacturers' Inventories (million $)[2]	2698*	2719	2487
Inventories-to-Sales Ratio	2.11*	2.16	1.90
Exports (million $)[3]	128.1*	155.6	87.2
Imports (million $)[3]	94.5*	101.7	107.0
Stock Price Index (1941-43=10)[4]	27.69	27.34	30.26
Failures (number)[5]	5	5	8

NATIONAL INDICATORS

Industrial Production (1947-49=100)[2]	166	167	155
Consumer Price Index (1947-49=100)[1]	126.4	126.3	124.0
Wholesale Price Index (1947-49=100)[1]	119.5	119.7	119.7
Civilian Population (millions)[6]	177.8	177.7	174.4
Unemployment (millions)[6]	4.4	3.4	4.0
Employment (millions)[6]	68.6	67.2	67.3
Personal Income (billion $)[3]	405.8	404.7	383.8

* May; otherwise, latest month is June.

1. Bureau of Labor Statistics; 2. Federal Reserve Board; 3. Department of Commerce; 4 Standard & Poors; 5. Dun & Bradstreet; 6. Bureau of the Census.

NEWS and COMMENT. . . . . .

"AGHAST," "BITTERLY DISAPPOINTED," "DISTRESSED," "ALARMED AND SHOCKED." With these words textile men expressed their dismay following refusal of the Tariff Commission June 27 to grant relief from pressure of textile imports. In a 4-to-2 decision the Commission declared that textile imports are not interfering with the Agriculture Department's subsidy program - that, in fact, higher cotton textile production overseas has increased domestic growers' markets. If the industry wants relief, the Commission said, it should seek it in the "escape" clause written by Congress into trade agreements.

Textile men quickly sought and obtained hearings before Democratic and Republican platform committees. On July 20 they asked the Republican group for "a plank which will open the way for a complete reexamination and reshaping of our government's policies and programs in the foreign trade area." Earlier the Democrats had shaped a somewhat cryptic plank that promises "international agreements to assure ... fair labor standards to protect our workers."

OVERSEAS, THE TEXTILE INDUSTRY IS BUSY, GROWING, PUSHING HARD.

...Russia. The Soviet has ordered a 600-automatic-loom plant from British Northrop Loom Co., Ltd. Value, $4.2-million. Delivery, 1962. It also has contracted with Platt Bros. (Sales), Ltd., for $1.96-million of draw twisters for processing man-made-fiber yarns. Delivery, early 1961. Meanwhile TEXTILE WORLD's Ernest Conine in Moscow notes a rising tide of interest in Moscow in trade with the British and suggests a close watch for developments.

...Sweden. Nearly 40% of textile imports from Hongkong are really originating in Red China and Japan, Swedish officials have discovered. TW's Raymond Shah, reporting from Zurich, says Sweden now is demanding a certificate of origin for every shipment from Hongkong.

...Great Britain. The Cotton Board now aims to eliminate about 20% of the nation's cotton-finishing capacity, thus ridding the industry of surplus production, says George Bull, TW's London newsman. The government will pay for complete production units that are closed down and scrapped. This move will finish out Britain's $48-million plan for "rationalizing" the cotton textile industry.

...Japan. One Japanese machinery maker has received two orders totaling 60,000 spindles; another, an order for 100 continuous carding machines. Both orders are to be shipped to the United States.

...Israel. The Ministry of Commerce & Industry and a group of Australians will build a $2.5-million plant for processing raw wool into tops, with annual capacity of 2,000 to 2,500 tons of tops, says

• • Sig Goldstein, TW's reporter in Tel Aviv. The company will be promised protection against competition (domestic output and imports) for five years.

...Poland. In 1959 the nation imported $15-million of textile machinery, mostly from Red Germany and Britain, reports TW's Sep Strobl from Berlin. This was $6-million more than in 1958. The figure for 1960 is expected to be still higher than in 1960.

Meanwhile textile-machinery makers in the United States kept a wary eye on developments in Western Europe. Eugene M. Kennedy, export manager of Whitin Machine Works, said: "Tariff cuts between members of the Inner Six and the Outer Seven trading blocs cause a further disparity between U. S. and European prices for textile machinery."

TEXTILE BUSINESS SEEMS TO BE HEADING OUT IN ALL DIRECTIONS AT ONCE. ...Indian Head Mills, Inc., reports net profits for the first half of the fiscal year at $1,425,000 (vs. $1,200,000 in the same period in 1959) and sales at $30,706,000 (vs. $27,157,000). . . American Enka Corp. reports net of $683,000 for the latest 24-week period (vs. $3,484,000 a year earlier) . . . Russell Mfg. Co. reports sales of $29,000,000 for the year just closed (vs. $26,000,000 a year ago) . . . The Kendall Co. posts earnings of $2.21 per share for the latest 24 weeks (vs. $2.10 a year ago), but $1.18 per share for the latest 12 weeks (vs. $1.29 a year earlier, when non-recurring gains totaled 32¢) . . . Draper Corp., reporting 6-month earnings up 126% (to $1.61 per share vs. 71¢) on a sales rise of 28%, lifts quarterly dividend to 35¢ per share from 25¢ . . . Dan River Mills's President W. J. Erwin predicts a 35 to 40% gain in per-share earnings for the first half of 1960, though sales will be about the same as a year ago . . . Rayonier, Inc., reports second-quarter net at $3,215,407 (vs. $3,550,734 a year earlier) on sales of $35,465,647 (vs. $33,547,291 a year ago).

HERE AND THERE IN TEXTILE NEWS ...Opportunity for textile men to strike a blow for more realistic equipment-writeoff allowances shows up in current action by the U.S. Treasury Department. To find out what industry depreciation practices now are, Treasury has mailed 2,700 questionnaires to manufacturing and other companies. The Small Business Administration has mailed another 3,300. If one comes your way, answer it. Could mean some liberalization of today's rules on depreciation allowances. . . Australia's Commonwealth Scientific & Industrial Research Organization is getting ready to inject radioactive isotopes into sheep as a way of studying wool growth. . . New models of at least three of the compact cars - Valiant, Falcon, and Comet - will have the same austere interiors as current models. That is, they'll use about one yard less of upholstery fabric than the standard cars use. . . President Eisenhower has designated September as National Wool Month.

WASHINGTON OUTLOOK . . . . .

Democratic Presidental-nominee John F. Kennedy drew a sketchy and indistinct set of battlelines for the election-time debate over foreign trade in his acceptance speech last month.

When the Democratic nominee lashed out at the Administration's record, he talked of the coming judgments at the voting booths that "unemployed miners and textile workers" will be making. That sounds like a slap at freer trade policies, which management and labor have blamed as the cause of such unemployment in domestic industries.

But a little later on in his speech, Kennedy called for sacrifices - business and private sacrifices - not subsidies. What seems to make this statement contradictory is that a form of subsidy, through so-called "trade adjustment" payments, is cited in the Democratic platform plank on foreign trade as the necessary cost of free trade.

Part of the apparent contradiction can be explained simply: It's part of a have-your-cake-and-eat-it-too campaign appeal. There is far less confusion over where candidate Kennedy himself stands on trade policy. He would broadly boost, not restrict, imports.

*

The Republican platform trade plank acknowledges the need for "effective escape clause and peril point administration to safeguard American jobs and industries." It adheres to the Reciprocal Trade Agreements Act as the best vehicle for carrying forward "selective and gradual" tariff cuts.

*

No matter how the various politicians try to skirt the issue of foreign trade, the issue will come to a boil in several important sections: In New England, the industrial South, in mining states, and in the "depressed areas" around the country - it will be raised by textile-mill owners and managers, and by top managers in a dozen other industries. That doesn't mean that either candidate will slow down the trend toward lower trade barriers. But protests of injured industries and workers may have either of two effects:

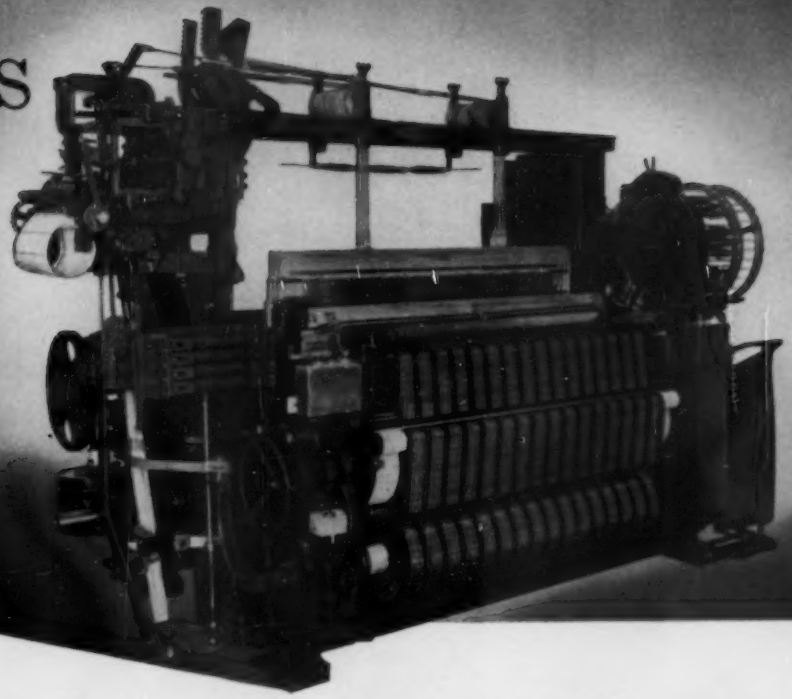
1. They may oblige the present Administration (and the new one) to grant selective relief to a number of industries who are being hurt badly. Relief may come in the form of higher tariff barriers in some instances. In others, it may be merely a government refusal to reduce restrictions any further.

2. They probably will cause a long-range change in outlook. The Democratic reference to trade-adjustment payments to injured parties is only a hint of what may follow.

*

While rising protection sentiment is not likely to resurrect the high tariff attitudes of the Smoot-Hawley days, there may be several trade innovations. One possible change on the horizon may be the abandonment of multilateral negotiating in favor of a return to bilateral trade treaties, or possible pacts with regional market groups. Another idea is that freer trade will have to be compensated by some kind of federal subsidies for displaced domestic production.

Here's the 4-Color Fully Automatic Loom for Fine Filament Fabrics



THE C&K C-7S WITH 4-COLOR ROTARY MAGAZINE

FEATURES
of the C-7S Loom:

- Push button electric controls
- Electric protection
- 4-color rotary magazine for 36 bobbins
- Flight-type optical electronic feeler
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This new C-7S Loom offers mills weaving fine filament fabrics the opportunity to maintain a new degree of consistent high quality . . . at consistent low costs.

Besides the features at the left there are many other engineering advances that result in the remarkable performance characteristics of this new loom.

We would like to arrange for you a more complete demonstration of the C-7S Loom than was possible at the American Textile Machinery Exhibition. In the meantime, let us send you the C-7S descriptive literature.

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What these little numbers

These are the numbers of three of the patents granted to Armstrong scientists for inventions on synthetic spinning aprons . . . inventions which have helped significantly to make spinning more efficient and more economical.

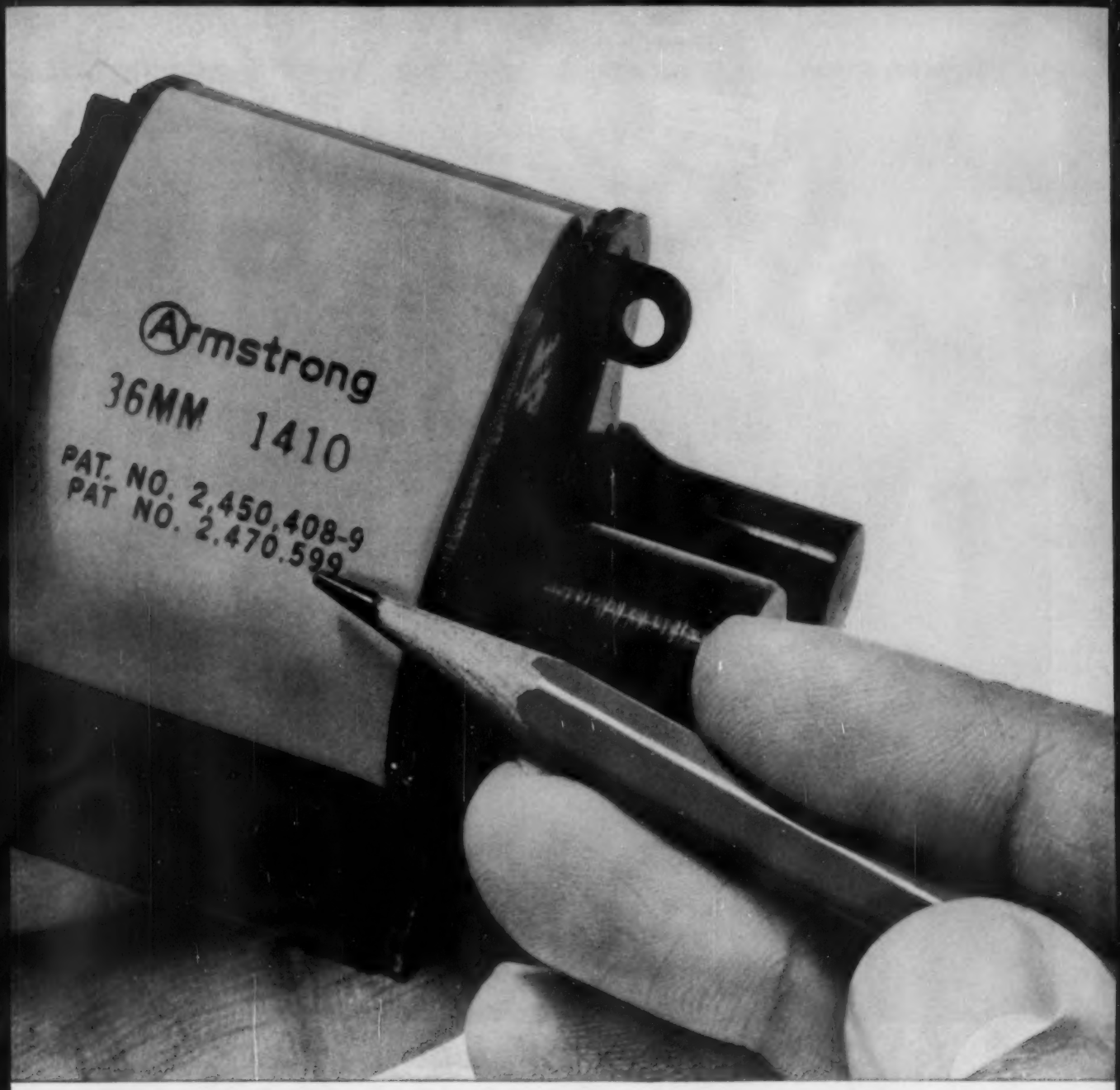
In all, fifteen patents related to synthetic aprons have been granted to Armstrong inventors. Accotex Aprons have been made under one or more of these patents since 1939.

These patents cover such things as the cord interliner in Accotex Aprons which provides dimensional stability and prevents stretching.

"Controlled friction" on fiber-handling surfaces is another invention. This process gives aprons just the right frictional characteristics.

Under another patent, a special electrolyte is blended into the rubber compounds to help prevent build-up of loose fibers on apron surfaces.

←CIRCLE 21 ON READER SERVICE CARD



mean to you

Good performance of Accotex Aprons doesn't just happen. It's built in, as the result of continuous research and development . . . under mill conditions as well as in the laboratory.

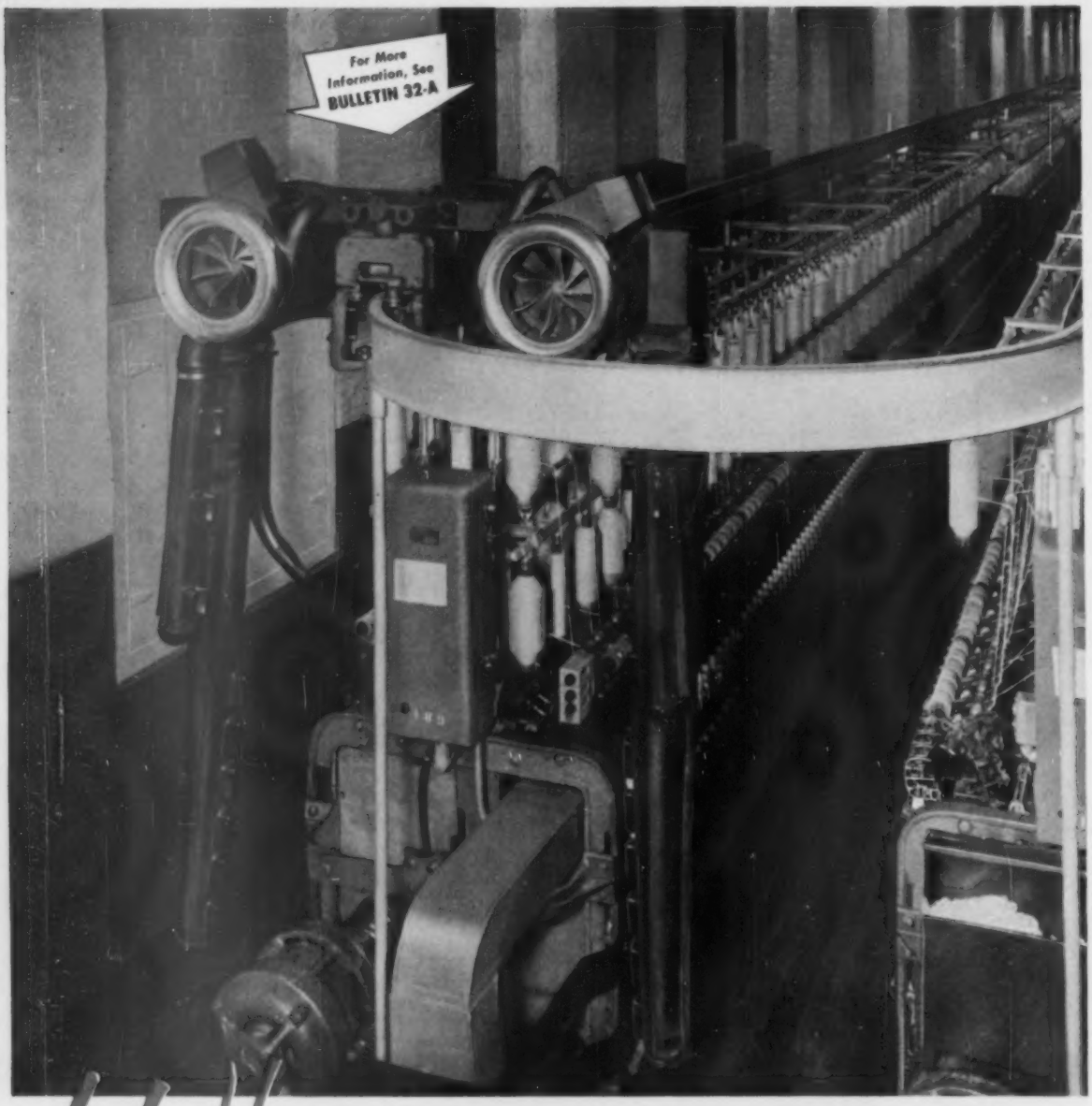
This intensive research work will no doubt produce other patentable inventions that will help you turn out more and better yarn. Armstrong Cork Company, Industrial Division, 6408 Dauphin Street, Lancaster, Pennsylvania.

Armstrong

ACCOTEX APRONS

1860-1960 Beginning our second century of progress

CIRCLE 23 ON READER SERVICE CARD



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- In cleaning more overhead area
- In cleaning more track area plus conductor bars
- In reducing track and wheel wear

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- ROV-AIRE—FOR ROVING
- DUO-BLAST—FOR LOOMS

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THE BAHNSON COMPANY
WINSTON-SALEM, N. C.

The Tariff Decision—Not All Bad

The Tariff Commission late in June turned down the textile industry's plea for help in meeting the import problem. Industry spokesmen have fought hard and long to make their views clear and convincing. They showed understandable shock and anger at the turn of events.

Yet we cannot share the anguish of those who believe the Commission's decision sounds the death knell of this industry. In fact, we believe the decision clears the air.

The industry now knows where it stands. The decision says, once and for all, that there is no real help to be found in Washington. It makes clear that if the industry has problems, the industry itself must solve them. It brushes the fog aside and discloses the basic problems, stark and challenging, just where they have been all the time. And it shows there is no way left except the hard way to deal with these problems.

What are the problems? They are all related to familiar goals: low cost, high quality, ever-growing sales.

But if the goals are old, familiar friends, the ways of achieving them are always new, always different. And that is where the challenge is—the challenge to the industry's ingenuity, its imagination, and its capacity for hard work.

What does the industry need to march on toward its goals? Here, nutshelled, is how we see the big needs:

• **Engineering progress**—The industry does not now command the wide range of engineering skills that an advancing industry needs. It needs more engineering talent directed at machine design, work methods, plant construction, material handling, work measurement, power distribution and utilization, maintenance, and processing, to mention some areas where faster processes is urgent.

• **Coordinated research**—There is little wrong with this industry that a few first-rate breakthroughs would not cure. But breakthroughs usually come where money and thinking are big. Short of being as big and rich as General Motors, the best way for a single company to command big money and big thinking is to join with other companies in an industry-wide pool of problems and projects, dollars and ideas.

• **Planned capital spending**—We're talking about modernization of plants and equipment as well as new construction. About systematic, planned investment that looks ahead two years, five years, and more. The industry already is spending a lot of money for new and modernized facilities. But a lot is not enough these days. The pressures for bigger and wiser capital spending are mounting higher every day.

• **Strong selling**—Here, market research is the key, on an industry-wide as well as a company basis. This industry is a major producer of soft goods for consumer markets. It should be a pacesetter in market research—an oft-cited example of the very best in market research. Today it falls short of that lofty description. It needs to move fast—right now. Later may be too late.

• **Shared information**—Sealed lips are right and proper when they guard a company's prized secrets. But the industry as a whole often suffers from lack of helpful information—helpful in fighting a common battle—because some company develops a case of corporate shyness ("We don't like publicity") or because it declines to reveal a significant improvement ("We don't want people to know how bad we were before we improved"). Fact is, the industry desperately needs ideas these days—lots of ideas. They will burgeon if there is a free flow of information. Anything else means stagnation.

Better Bargain for You

We're always looking around for ways to make TEXTILE WORLD a better buy for you. That is, ways to give you more for your money.

With the thought that time is money in every textile man's life, our idea-of-the-month for August is a pocket-size booklet called "How to Cut Your Reading Time." Master its contents (just 10 pages of easy-to-read reading) and you'll soon be soaking up more information per minute of reading time—or trimming minutes off your daily reading schedule. Either way, TEXTILE WORLD will become an even better bargain for you.

We'd like to send you a copy of "How to Cut Your Reading Time." It's free. Just write to TEXTILE WORLD, Reader Service, 330 West 42nd St., New York 36.

Good records management will plug a profit leak that may be draining your company's strength. How to start? Which records should you keep? How long? Where can you store them? Here are answers to those questions, and to the broader question . . .

What to Do About Those

A LARGE TEXTILE firm in the South discovers it can dispose of 50% of its records—can throw out 47 tons of useless paper, can postpone the purchase of 121 metal filing cabinets that would cost $9,700, and can open up 3000 square feet of floor space to income-producing office and manufacturing operations.

A chemical firm audits its records procedures, finds it can forget about building a $300,000 warehouse to store needless records, because it doesn't need to keep records as long as it thought. Increase in available record space: 132%. Saving in storage space: 50%.

Those are two examples of the remarkable savings in time, money, and floor space that textile firms—and others in industry—can realize as a result of better, sharper, and up-to-date records management.

There's a lesson here for you, too, because now you can get a clear answer to persistent questions about which records you must keep and which you can throw out. Numerous government regulations and a fear of throwing out "something that may be important" may have been the reasons why you now have far more records than you need.

Whatever the reasons, if you are in that position, your mill is losing money on its records operation. The mysterious leak that drains off profits, boosts costs, and causes office confusion will lose its mystery once you've taken a fresh look at your own paperwork.

By RUTH G. FROST
Business Consultant
New York City

FINDING A START

According to the Association of Records Executives and Administrators (AREA), the cost of office space averages from $3.50 to $5.25 per square foot today. And AREA also estimates that it costs $7.50 a year to keep a file cabinet, which takes about six square feet of floor space.

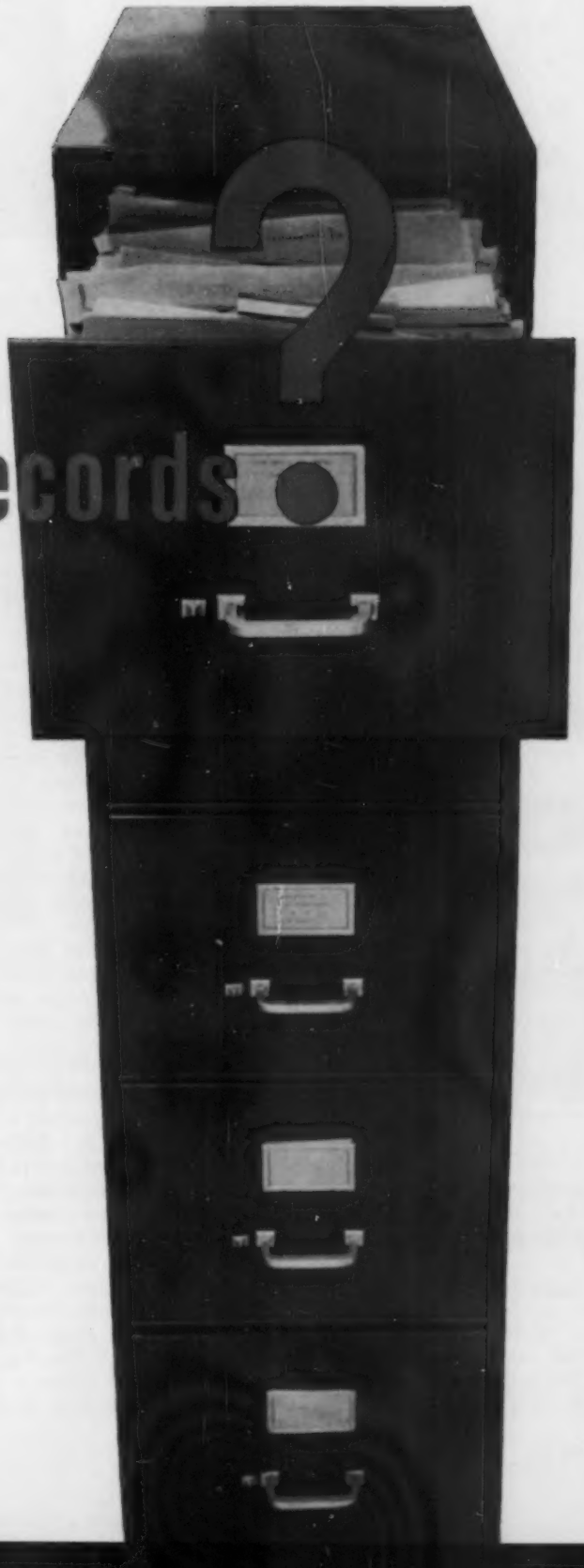
Those are what you might call the fixed cost of records management. Now what about the variable costs? The costs that you as manager can do something about—right now?

First thing for you to do is to ask yourself which records you must have at your fingertips to operate efficiently. Then find out how much you are spending to accumulate and maintain these records. Once you've done these things, you can figure out how to cut your costs.

The two prominent companies mentioned above cut back the jungle growth of their own paperwork with the help of experts. There may be a clue in their experience for you. As it happened, the National Records Management Council (NAREMCO) was the organization that gave both these companies a hand in figuring out a more logical method of handling their records. But, of course, there are other management consulting firms like NAREMCO that can help you develop new standards and techniques to raise the quality and lower the costs of your paperwork.

The methods and criteria for sound records management developed by NAREMCO and other management analysts have realistic, substantial application to business operations of any size. While total results in terms of either dollars or percentages might look less impressive in a smaller firm, they are probably even more important because smaller operations have less room for hidden leaks. They operate without the comforting cushion of large

Business Records



resources that most of the giant enterprises have.

Your basic problem can be simply stated: What are you going to keep? How long?

A "records retention schedule" is probably what you need right off.

Before you can set up a system of priorities, there are four things for you to know:

1. Government requirements—Numerous city, state, and federal agencies now prescribe specific time periods for which certain records must be kept. Ask your legal counsel or your accountant for guidance here. In addition to those records that you must keep to comply with the law, there's another group that you should keep because of various statutes of limitation—laws that tell how long after an action you are liable to legal proceedings.

2. Vital records—Which documents are indispensable? Ask yourself—and ask others on the management team—which records they refer to most; how frequently these records are used, and by whom. Perhaps the best single question to show just how vital a record is to your firm is this: "What would happen if this record were not available?"

3. Historical files—These papers

What Companies Across the Board Are Doing About Records Management

1. CODING records before they go to storage areas.

BUSINESS RECORDS

. . . *Begins on page* 26

are the "memory" of your company. They record company achievements, failures, and other experiences that serve as the informal history of the entire organization. They are useful benchmarks for decisions.

If at this point you begin to wonder if records retention schedules are really worth all the trouble, remember that in addition to helping you cut down on your current, annual record crop, the retention schedule will also act as a control on the future accumulation of records. A really effective set-up should guarantee that the remaining record volume will expand proportionately only with the growth of the business and a small increase of records that must be permanently retained.

4. Time limits—The last step in determining the life span or retention schedule of a record is to develop a series of time limits for each category. Keep in mind . . .

. . . *The time a record should be saved* in active office files.

. . . *The period it should be retained in storage.*

. . . *The total time—the "overall retention" time.* These figures are developed from yardsticks that include the frequency of referral to a document and cost per request.

SETTING STANDARDS

By now you know which records you can discard. While the price they fetch as wastepaper will not be as high as a decade ago, there should be some small financial reward for cleaning house.

In addition, the floor space freed by this weeding process, as well as the reclaimed filing cabinets, should tally up in dollars and cents at the end of a fiscal period.

Next problem to tackle is what to do with the records you are planning to save either permanently or for a specified number of years. You have two choices. You can store them in the office, basement of the mill, or some other spot on the company's premises. Or you can build a separate records center.

The latter plan is usually best for large organizations, where records now may be scattered in a wide variety of places. Placing them all under one roof where they can be safely and inexpensively stored is usually the most economical procedure to follow.

Housecleaning time is a good time to examine the record-keeping forms in use by your company. Ask yourself if the forms in use are really efficient. Is it possible to make two forms do the job of one? The development of multi-purpose forms in reorganizing a records storage program is a major step in inhibiting record growth that eats up valuable office space. This is part of the modern concept of an integrated record-keeping policy that breaks down departmental barriers and helps avoid duplication. If one record can hold information of five departments, why repeat the information on five separate cards? Planning an efficient record card can often be done by company executives who are familiar with the need of the firm. But a quicker, more objective job can often be done by a qualified outsider who is not subject to the pressures of prestige and the many other factors of office ritual and protocol.

CLEANING OUT

Watching a records management audit at a textile firm is the best way to see how a system is organized. Recently NAREMCO Services, consultants in the field of records management, was called in to overhaul the record system at a company that we'll call XYZ Mills.

XYZ Mills employs more than 10,000 people in the manufacture of cotton and synthetic fibers, finishes and textiles. The century-old firm is divided into more than a dozen operating divisions and three subsidiaries. Net sales during 1959 were well over $120 million.

Before the introduction of the Controlled Record Keeping Program, XYZ had a huge accumulation of records at offices and storage areas. There was almost no regularly scheduled examination of the record-keeping policy—no orderly transfer - and - destruction system. There were no central storage areas. Records were dispersed throughout the various locations of the company plants. A survey showed that the files in some areas had not been referred to for many years and were piled up in cartons in garages, shacks, and other spare locations.

Selecting six units of the company, NAREMCO inventoried the

2. TRANSPORTING records in an orderly, manageable fashion.

3. EQUIPPING storage areas well for top space utilization.

4. TRAINING clerical personnel to use streamlined system.

5. COMMUNICATING information fast by means of portable phones.

records to set up a pilot program that was later used as a model for installations at other units. The pilot installation included the general office plus a half-dozen operating units here and there.

The inventory conducted by NAREMCO revealed that there were 681 different record groups in existence that measured 6,316 cubic feet. In appraising the records to prepare a series of retention periods for the different categories, NAREMCO used four yardsticks to determine the life span of each record:

1. Legal requirements governing the retention of each record.

2. Retention practices of comparable manufacturing companies.

3. Use made of each record by the company.

4. Volume and space occupied by each record.

It took over 1,200 individual decisions to establish retention periods for the six categories covered. In the weeding process 110 record groups were eliminated through obsolescence or uselessness. Of the

STEPS FOR AUDITING YOUR RECORDS MANAGEMENT

1. Physically check existing records facilities in office and storage.
2. Summarize the volume and type of equipment now used for maintaining records.
3. Spot check present records retention practices in order to highlight specific areas that represent a potential for improving existing retention policies.
4. Review and analyze existing microfilm projects.
5. Examine current filing arrangements, and review current procedures for segregating material for storage and/or destruction.
6. Review existing filing operations from the standpoint of centralized or decentralized service, classification patterns for filing and finding, controlled documentation and reference service.
7. Identify current costs for record keeping in office and storage areas. Develop cost data for filing equipment in use, space utilizaton for filing and records storage purposes, and costs involving the use of microfilmed equipment.
8. Determine the extent to which records of historical and permanent administrative value are selectively preserved to meet the need of management's memory and the history of the company.
9. Examine existing records of storage areas and evaluate the need for the installation of a scientifically designed records center.
10. Explore the possibilities and/or availability of company personnel who might require further training to carry on the program.
11. Review existing measures taken to protect vital records against hazards.
12. Meet with key department heads to become acquainted with any special problems.
—National Records Management Council.

. . . Begins on page 26

681 groups inventoried, 89 groups were classified as permanent. This figure represents only 8% of the total volume. As a result of the survey, over 7-million pieces of paper, or 3,175 cubic feet of records, were earmarked for destruction. This figure represented 50.3% of the company's volume of records. The reclaimed space was turned into additional office area or other more productive uses.

Because some of the records earmarked for permanent retention appear to have neither historical, legal nor administrative value, the retention periods are fixed, but are subject to regular review and adjustment. Later decision will be made on the basis of frequency of referral or "reference activity," as it is called by NAREMCO's professional consultants. Formula for determining this figure is based on the number of times a record is referred to by annual age group.

Examining the records in offices and office vaults, NAREMCO found that the transfer and destruction program could free 59 file cabinets that were occupying more than 400 square feet of office floor space. Breaking down the office records, statistics showed that 34% or 702 cubic feet of records was transferred to the records center and that an additional 26% or 543 cubic feet was earmarked for disposal.

Further analysis showed that as a result of the establishment of retention periods, destruction and transfer of records released over 3,000 square feet of re-usable storage space in various locations throughout the mills and general offices. A temporary records center, set up at the time of the audit, allotted 1,300 square feet of floor space and housed adequately all the records to be kept in storage. It also provided for more than 800 additional feet of records.

Introducing a new system for the storing of records, NAREMCO used a storage container that measured 10x12x15 inches, had a capacity of one cubic foot of records, and sold for about 33 cents each in lots of 1,000. The steel shelving units cost approximately $40 per unit, with each unit holding 72 cubic feet of records. Equipment cost per cubic foot amounted to 88¢.

Previously, according to the audit, storage equipment expense amounted to $1.50 per cubic foot of records per year. With the new equipment, costs were dropped to 88¢—a reduction of equipment costs by 41%. Savings were also achieved by releasing filing cabinets for reuse elsewhere. Startling figures showed that at least 121 metal filing units with a replacement value of $9,700 were freed, thus eliminating the purchase of any new standard file equipment for at least three to five years. In addition 20 wood files, 183 metal transfiles, and other miscellaneous equipment were released as a result of this campaign.

OPENING UP CHANNELS

Another significant economy comes from direct channeling of all records from the offices to the Records Center and then to the incinerator. In the past, some types of records were moved two or three times from one storage location to another as they became older, thus multiplying the cost of maintenance.

In addition to the pilot study, NAREMCO recommended that a records center be built to house all company documents at a centralized location, and drew up specific blueprints. It also recommended that the operation of the center be a separate organizational element, reporting to the controller of the company.

The recommendations of the records center building showed an overall dimension of 40x60 feet with floor dimensions of 38x58 feet and a ceiling 14 feet high. In terms of file space, the building was designed to accommodate all of the company's records and allow for 100% expansion. The area will provide for a total of 2,204 square feet of floor space and 85 shelving units. All this will be capable of housing 6,120 cubic feet of records.

Any of the skeptical officials who felt that storage of records away from the office, where they originated, was not economical in terms of retrieval cost were provided with a set of figures that proved one thing beyond a doubt: A properly trained records clerk and a good code system can provide quick, cheap management of records at a record center—cheaper than having the records sit on office floor space. (Rental costs were higher at the office than at the records center.)

NAREMCO also pointed out to XYZ officials that it was even quicker to pick up a phone at a desk, call the archivist or clerk at the Record Center, and have him pass information back in just a matter of minutes. In terms of time saved it was estimated to be quicker than for an executive to get up from his desk and go to the file himself for the material. This saving is achieved by having the trained archivist (soon to be equipped with portable telephone) go directly to the needed file and read the information back immediately. The record is then replaced in the file. Total result: minimum of time and effort. The trained records center clerk is also invaluable when it comes to tracking down very old records. He saves manpower and money when he can find an old record that normally requires a personal visit and search by an executive.

BUILDING "MEMORY"

Historical records got special attention in the survey NAREMCO provided for their retention on the basis of maximum usefulness. A special "Time Capsule Check Sheet" serves as a guide in selecting historical items that will give an accurate picture of all company operations and experience. Categories list records referring to ownership, management organization of the firm, finance, production, products (research and development), marketing (strategy and tactics), community relations, and government relations.

Of course, the needs of each textile firm differ. But the XYZ retention schedules for some production records have significance for other textile companies. For example, XYZ's cloth inventory records are assigned the following schedule: 1 year in the office, 5 years in the records center; to be destroyed in 6 years (a total of the first two figures). In contrast, an inventory summary is judged to have historical value and is tabbed for immediate and permanent storage at the Record Center. The production record book of the cloth room, which is also judged to have historical value, is filed for 3 years in the office before being permanently assigned to the record center. From these figures you can see how the usefulness of the record determines the retention and transfer schedule.

MICROFILM: YES OR NO?

No discussion of records management would be complete without a pause to consider the problems and advantages of miniaturization—the use of microfilm and other methods that reduce the area taken up by company records.

A decade ago, many executives looked upon microfilm as the answer to the record storage problem, because the contents of so many thousands of pieces of paper could be reduced to a roll of film. But those who pioneered in the use of this device soon discovered that they fell prey to the temptation to put everything on microfilm. This way, they emphasized the large amount of material that could fit into a small space, rather than the elimination of as much of the material as possible.

In addition to the loss of incentive for selectiveness, executives discovered that handling microfilm was not as easy as handling a piece of paper. For one thing, when records had to be examined, the executive had to leave his desk to go to a room with a special projector to view the material. There was no way of placing the record of his desk unless a copy of the microfilm was made, thus neutralizing any benefit that the miniaturization might have achieved.

Today the tendency is to use microfilm only when it becomes part of regular administrative procedure, or when microfilm records make it easy to create the original record. For example, department stores have been using microfilm to enter records of charge purchases so that the customer can quickly read all the information about the purchases she has made for the particular month. When records are born on microfilm, the retain their usefulness when left and filed in that state.

The results of a record management work audit can have far-reaching effects on the efficiency of an entire business operation. Each step in the process of eliminating old papers and duplicated forms is reflected in the achievement of reduced clerical costs, for it takes people and manhours to fill out, file, and retrieve these superfluous records. Savings in equipment, including filing cabinets, desk space, and other aids needed by clerical workers are also to be considered.

Finally, by reducing your paperwork and preventing the accumulation of unnecessary records, you are decreasing the amount of floor space needed to house them—releasing valuable office and plant space for more productive purposes.

Even more important than these factors is the big increase in operating efficiency. Executives who have easy access to properly filed records have good tools to guide them in developing policies and planning future undertakings. Without useful—and accessible—records, an analysis of current or past operations is impossible for them to make. Today, efficient record housekeeping is synonymous with efficient overall operations.

Help for Records Managers

Controllers Institute Research Foundation, Inc., has developed a series of books that may help you in managing your mill and office records. The following volumes in the Foundation's "Corporate Records Retention" series are available (at the price listed) from the Foundation at 2 Park Ave., New York 16, New York:

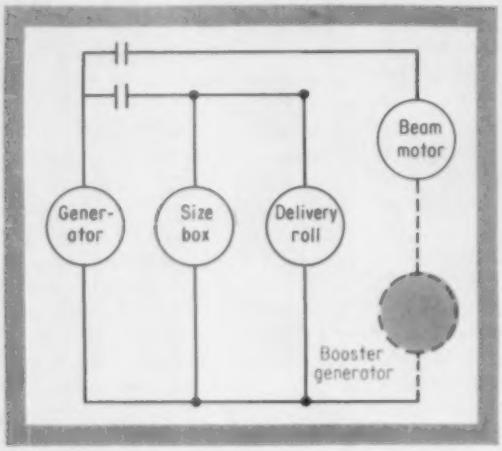
Vol. 1: Federal Requirements, $10; vol. 2: Canadian Requirements, $10; and vol. 3: State Requirements, $20.

Reprints of this article are available at 35¢ per copy, quantity prices on request. Write to Reader Service Dept., Textile World, 330 W. 42nd St., N. Y., 36, N. Y.

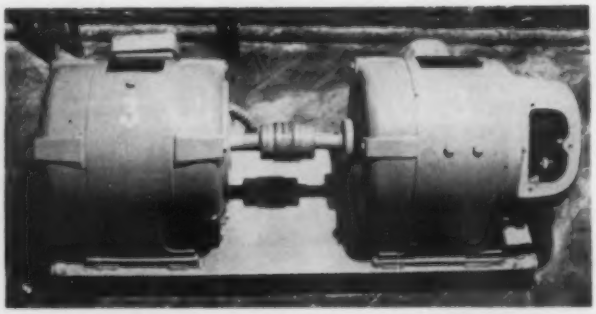
Doesn't matter how old—or new—your slashing equipment is.
You can pep it up, get more efficient production,
by adding one of these devices to your present equipment.

3 Ways You Can Update

1. Booster Generator

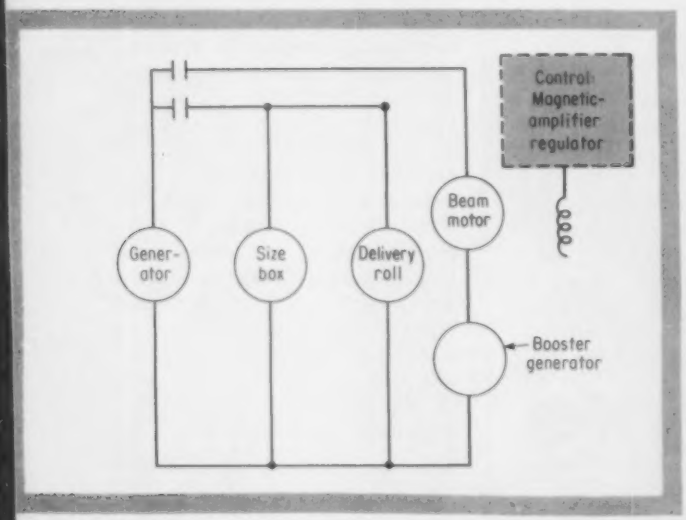


Schematic drawing shows how booster generator fits into slasher circuitry at crucial point.

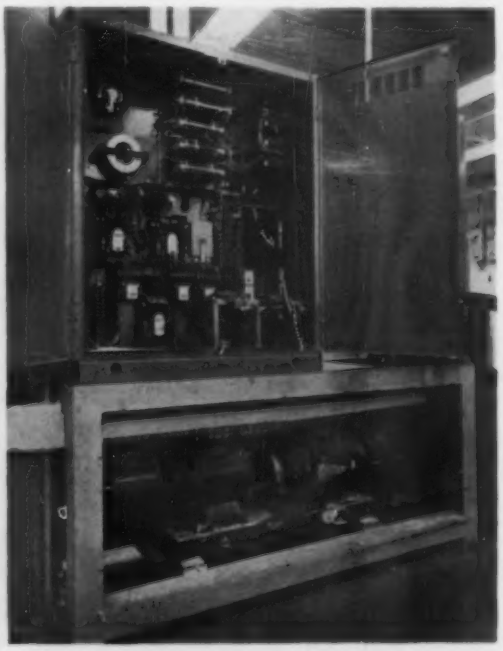


Tandem hook-up is horizontal in newer units, although a vertical arrangement is also effective.

2. Magnetic Amplifier



Magnetic amplifier helps maximize effect of booster generator, puts new muscle into entire drive unit.



Unit is installed close to booster generator (below it in photo) and slasher drive (behind cabinet).

Your Slasher Drives

LOTS OF MILLS today are modernizing their slashers—and chalking up impressive gains. How? By equipping their older slashers with packaged multimotor drives. This way, they can put all the power supply and controls for a slasher into a single factory-wired unit.

These compact drives are easy to service. They're also easy to fit into valuable mill space.

Benefits of modernizing slashers this way? Seven of them:

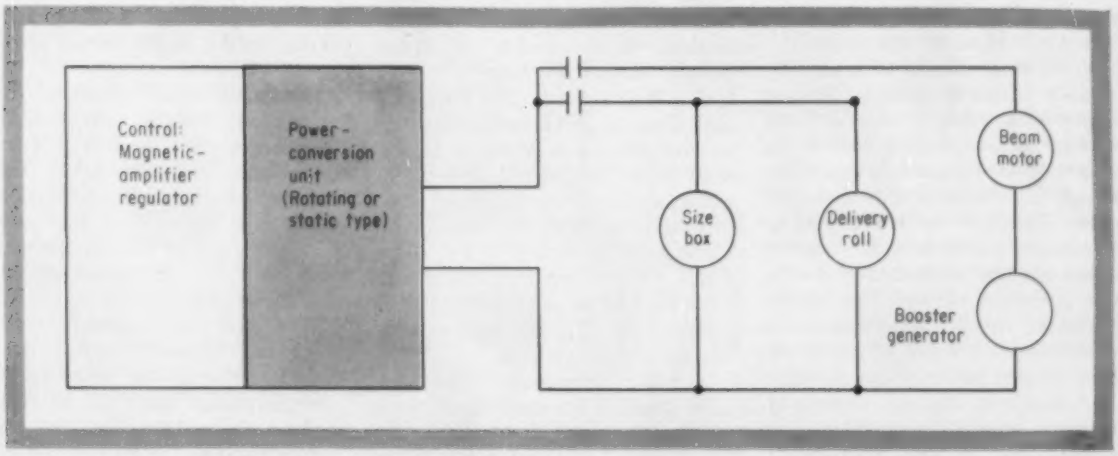
- Increased slasher output
- More yarn on the loom yarn beam
- More uniform tension
- Less labor in the slasher room and weave room
- Less waste
- Less maintenance
- Greater flexibility

You can put these packaged drives on slashers of almost any age. Three different packaged drives are available today:

1. A booster-generator addition for your drive system.
2. A magnetic amplifier (to replace the rotating regulator) plus a booster generator.
3. A complete new multimotor drive with either rotating-power supply or the new static-power supply —whichever you choose.

With these to draw on, you can get maximum operation from multimotor slasher drives (those you may have installed before 1953) or re-

By J. G. STEPHENSON
and J. C. MAROUS,
Westinghouse Electric Corp.
Atlanta, Ga.

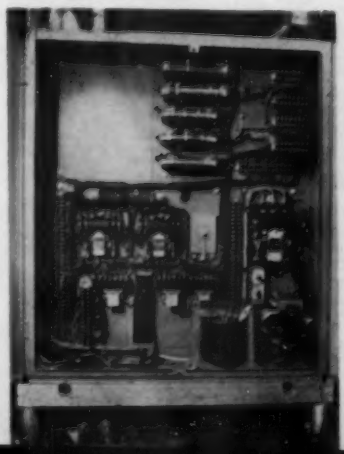


3. Power Conversion Unit

This addition rounds out the possible improvements on a multi-motor slasher drive unit. It's represented schematically as in drawing, above. Even with such up-to-date improvements, it makes sense to keep such d.c. power sources close to drive units, to avoid voltage losses.

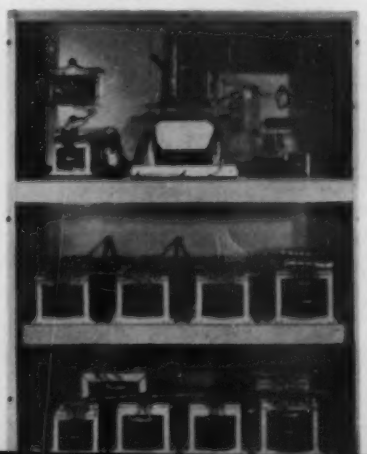
Rotating . . .

Rotating units plus controls are housed in compact cabinet. On other side: booster-generator.



or Static

Big advantage here, in this static-type unit, is that there are no moving parts to get out of order.



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place your obsolete single-motor or line-shaft drives.

Take them one by one, see what they'll do:

1. BOOSTER GENERATOR

This addition improves the operation of multimotor slasher drives. These older drives were supplied with a rotating regulator but had no booster generator because 65 yards per minute was thought to be maximum slasher speed.

But slasher speed is now being increased to 125 yards per minute—and even higher. Also the variety of yarn weights and sets is increasing. Because of today's requirements, you need a booster generator to maintain quality warps.

The complete package consists of a booster-generator set, a two-circuit tension-control rheostat, two fixed resistors, and a line starter. Cost: about 12% of the cost of a new slasher drive.

Report on 25 slashers—At this time 25 slasher drives in mills in the Southeast have been modified by this way. Here are the results:

1. Better tension at all speeds, especially at creep speed. Because lightweight yarn is run at high speed and heavyweight yarn is run at low speed tensions can vary between lightweight and heavyweight yarn. Therefore the booster generator operates over a wide range of speed and tension to control the entire operating range. The booster makes up the IR drop of the beam motor that is needed to obtain desired tension under all conditions.

2. Soft-core beams eliminated. Uniform tension is provided from empty core to full yarn beam. Weave-room efficiency is higher because all yarn on the loom beam is run off at the loom.

3. Sagging yarn eliminated between loom beam and delivery roll. Tension control during acceleration is more uniform, and soft and loose warp at any yarn-beam diameter is prevented.

4. More tension available.

5. Slasher speeds higher. At higher operating speed, the beam motor must develop higher torque to obtain the same yarn tension available at lower speed. With booster generator, the beam motor can develop this higher torque.

2. MAGNETIC AMPLIFIER

Complete modernization comes from replacing the rotating regulator and control with a new controller (with magnetic-amplifier regulator) and a booster generator.

This unit consists of a magnetic amplifier and control cabinet, including a motor-operated rheostat, contactors, all sequencing relays, and new drawings. Also the rotating regulator is rewound and converted to a booster generator. Cost: about 30% of new drive.

About 300 drives with rotating regulators were installed before magnetic amplifiers were available. Since 1953 more than 125 of these slashers have been equipped with magnetic amplifiers.

Modernized all the way—Last year a Georgia mill modified one slasher drive with the magnetic amplifier to evaluate it. Now it has changed over all five slashers with the following gains:

1. More uniform tension. The higher sensitivity of the magnetic amplifier provides more uniform tension, which results in fewer broken ends at the loom.

2. Close resetting. The same tension from a given setting on the tension rheostat is provided all the time. Once the best tension is determined for a given weight of yarn, this same tension can always be maintained by returning the rheostat to the same position. Operators have marked rheostat settings with colored tape as guides in processing various weights of yarn.

3. Lower maintenance. The magnetic amplifier is a static device with no moving parts. That's why it requires almost no maintenance.

4. Advantages of booster generator. All advantages of the booster generator are obtained by converting the existing rotating regulator into a booster generator. This conversion is made by simply rewinding. No need for a new booster.

3. COMPLETE DRIVE

The third slasher-drive unit is a complete new multimotor drive with either rotating-power supply or static-power supply. The units are primarily for new slashers.

Rotating power—Basic elements of the drive with rotating-power supply are: (1) a conversion unit, which is a motor-generator set and booster generator; (2) the d.c. motors; and (3) the control.

The motor-generator set and all of the controls (except the rheostats, pushbuttons, and ammeters) are mounted and wired at the factory in a cabinet.

A static regulator (magnetic amplifier) regulates beam tension. A static exciter supplies control power. Neither has any moving parts. Over 125 slashers have been equipped with this type of drive.

Newest: Static-power supply—The static-power supply and booster generator is the newest drive. The rotating motor-generator set and booster generator are replaced with a static-power supply and booster. These have no moving parts.

This unit looks much like the small transformers, or the magnetic amplifiers, that have been used on slasher drives for many years. But the power-conversion unit really consists of power reactors and silicon-diode rectifiers. Adjustable motor-armature voltage is obtained by varying the d.c. in the control windings of the reactor.

The static units eliminate the maintenance usually characteristic of rotating equipment such as bearings, brushes, and commutators. The efficiency of this power-conversion unit is also higher than the combined efficiency of the a.c. driving motor and d.c. generators of the magnetic-amplifier set.

Mills that have recently completed such a modernization program are enjoying the following:

1. Production speed on all yarn numbers and weights of warps has been doubled.

2. There's 20% more yarn on each loom yarn beam.

3. Slasher-room labor cost is reduced 33⅓%.

4. Labor cost in the weave room is reduced 8% because of the higher efficiency in better slashed warps. There are fewer broken ends at the loom, and there's less warp retying because there's 20% more yarn on each beam.

5. Waste is reduced 2% because warps are built up better.

6. Less storage space is required and there's less beam handling with the 20% additional yarn on each beam.

PUTTING APTITUDE TESTS TO WORK—1.

How Swift Beat Its Loomfixer Shortage

FINDING YOURSELF in a squeeze for good weavers and loomfixers? Many mill managers are. For example, one superintendent of a weaving mill recently said: "My old E-model looms are about used up, but I don't know whether to rebuild or junk them. My loomfixers are getting old. I don't know if they can switch to modern high-speed looms."

Of course, not many superintendents are that gloomy. But still they suffer with the problem common to weaving-mill management everywhere—a shortage of good weavers and loomfixers—and therefore the ultimate shortage of good supervisors for the weave room.

But not everyone is taking the problem passively. For instance, Swift Mfg. Co., Columbus, Ga., took a look at its future a couple of years ago and didn't like what it saw. Weavers, loomfixers, and supervisors were all retiring rapidly, leaving no replacements for the very fancy looms at the mill.

So in January 1959, Swift launched an ambitious training program for new weavers and loomfixers, who will eventually become supervisors. This program has worked so well that it has been broadened to retrain loomfixers now on the job.

TWO WAYS TO SELECT

The training program begins with Swift's Personnel Manager Morgan Butaud. Under Mr. Butaud's direction, Swift selects trainees in either of two ways:

Tests for beginners—Georgia State Employment Service gives mechanical-aptitude tests to young men. These men must be high-school graduates and preferably ex-servicemen. The average age is the early twenties. If the men meet employment service requirements, they go to Mr. Butaud for interviews.

Screening applicants—Meanwhile, Mr. Butaud interviews prospective employees who come to the mill employment office looking for jobs. Qualified applicants are sent to the State Employment Service office for aptitude tests.

Men selected as trainees by these methods are trained first as a group and then individually under the direction of a full-time company loomfixer-trainer.

No women are included in the group because training is basically for immediate loomfixers and eventual supervisors.

But the door isn't closed to women batteryhands or other women employees who wish to become weavers. They are given a chance to become weavers on cam looms, which are the lightest looms at Swift.

Regular training classes have from one to 14 trainees at a time. The average is eight.

9 TYPES OF LOOM, 12 WEEKS

Swift has one loom of each basic type in the mill, set up in a special training room away from weave-room production looms. Presently there are nine types of looms including: Draper X-2, XL, and XP, and C&K C-4, C-5, and W-3.

Swift added Jacquards to its group of looms about a year ago. And there are four types of head motions including C&K dobbies and Knowles head motions and Staubli dobbies.

Here's the training schedule for the Swift trainees:

Weeks one and two—From 7 a.m. until noon, trainees work in the training room under the instruction of the training supervisor. They learn how to tie a weaver's knot, start up a loom, draw in a warp end, and correct a mis-pick. From noon until 3 p.m., each trainee works with a separate weaver in the weave room. He observes the weaver and soon begins to help the weaver generally—i.e., in several ways.

Week three—At the beginning of the third week, a trainee is given one cam loom. He runs this loom for a full week and inspects all the cloth woven. The supervisor inspects the cloth with the trainee periodically, points out fabric defects, tells the trainee how to improve his methods.

Weeks four and five—The trainee is given two looms the fourth week and three looms the fifth week.

Weeks six, seven, and eight—At the beginning of the sixth week, the trainee is given one multi-shuttle (box) loom. Looms are increased to two the seventh week and to three the eighth week.

Week nine—The next week, the trainee works with the man who builds box chains and pattern chains. He builds chains and also repairs chains at looms.

Weeks ten and eleven—Both weeks are spent in the weave room with a warp man. There the trainee learns to tie on warps.

Week twelve—This week is review week. The training supervisor has the trainee do any job he appears to understand least.

During all the first 12 weeks of training, the supervisor checks the trainees continuously.

TRAINING: A YEAR LONG

After this 12 weeks of instruction, the trainee returns to the training room for another 12-month period as a loomfixer trainee.

Swift has manuals with mechanical breakdowns for every major loom motion for every type of loom in the mill. The supervisor teaches the trainee all of these breakdowns.

But training may be interrupted for a trainee after the first 12 weeks. He may become a production weaver, or work with an overhauling crew. He will be given loom-breakdown instructions while he's on either of these jobs.

The time required to make a pro-

. . . *Begins on page* 35

duction weaver is three to six months. Loomfixers are trained in an average of one year. One outstanding trainee learned to weave within three weeks and was running a loomfixer's section well at the end of one year.

TRAINING OLD-TIMERS

An important byproduct of the training program is on-the-job training of older loomfixers. These fixers are given instructions by the mechanical breakdowns and also in the correct use of gages.

Weave-Room Overseer J. C. Hutchinson keeps a file on every production loomfixer and his rating as a loomfixer.

Weave-room supervisors check looms at warp-outs. Loomfixers receive checklists to show the maintenance work that is to be done by the mechanical breakdowns. After the work is done, the weave-room supervisor again checks the loom. Loomfixers that appear weak as a result of these checks are given refresher training in the training room as a follow-up.

The over-all training program is so successful in the weave room that Mr. Butaud is making plans right now to give State Employment Service aptitude tests to shop mechanics so that he can start a similar training program in the machine shop of the mill.

Now, if you'd like to know more about aptitude testing, read on down the page.

PUTTING APTITUDE TESTS TO WORK—2.

What You Should Know About Testing

By S. H. BLACKWELL, Manager, State Employment Service, Columbus, Ga.

There are only six general aptitudes in the General Aptitude Test Batteries (GATB) that are really essential if you're screening for weavers or loomfixers.

When we first made arrangements with Swift Manufacturing Co. to recruit, screen, and refer test-selected high-school graduates to the company, we worked on this basis: Weavers need form perception, special aptitude, motor coordination, and finger dexterity. Loomfixers also need form perception. But their aptitudes differ a bit from weavers. The other two essential aptitudes for loomfixers are numerical aptitude and manual dexterity.

We gave local graduates the GATB series, which is designed by the U. S. Employment Service to measure capacities to learn various jobs. These tests, by the way, are available to all State Employment Service local officers.

The one big benefit of such testing, of course, is that it cuts down the gamble on new hiring. (No matter what your personnel needs, you can make use of various tests to screen out all but the very best candidates. More than 300 specific job aptitude tests now exist.)

In addition to weaver and loomfixer selection, Swift recognized the need for an aptitude test for picking doffer trainees. The company has made its employed spinning doffers available to our department for developing these tests. Once we made our tests, we passed the results on to the U. S. Employment Service national office in Washington. Sometime this year a test for spinner doffers will probably be completed.

TESTS BY JOB STUDY

Specific batteries for different occupations are made up by extracting the pertinent elements from the complete battery and assigning the norms necessary for job success. This development is not done arbitrarily, but is done by job study and statistical preparation of collected and prepared data.

Here are definitions of the nine aptitudes:

1. General learning ability—The ability to catch on or to understand instructions and underlying principles; the ability to reason and make judgments. This trait is very closely related to doing well in school.

2. Verbal aptitude—The ability to understand the meaning of words and the ideas associated with them, and to use the words well. The ability to understand language and relationships between words, and to understand meanings of whole sentences and paragraphs. The ability to present information or ideas clearly.

3. Numerical aptitude — Ability to perform arithmetical operations quickly and accurately.

4. Spatial aptitude—Ability to think visually of geometric forms and to comprehend the two-dimensional representation of three-dimensional objects. The ability to recognize the relationships resulting from the movements of objects in space.

5. Form Perception—Ability to perceive pertinent detail in objects or in pictorial or graphic material. Ability to make visual comparisons and discriminations and to see slight differences in shapes and shadings of figures and widths and lengths of lines.

6. Clerical Perception — Ability to perceive detail in verbal or tabular material. Ability to see differences in copy, proofread words and numbers, avoid perceptual errors in arithmetic computation.

7. Motor Coordination—Ability to coordinate the eyes and hands or fingers rapidly and accurately in making precise movements fast. Ability to make a movement response accurately and swiftly. (Probably this is related to reaction time.)

8. Finger Dexterity—Ability to move the fingers and manipulate small objects with the fingers rapidly or accurately.

9. Manual Dexterity—Ability to move the hands easily and skillfully. Ability to work with the hands in placing and turning motions.

TEXTILE WORLD'S Man-Made-Fiber Table—1960 Supplement

Researchers Come Up With 12 Impo

Twelve fibers of major importance have jumped into the spotlight since publication of TEXTILE WORLD's 1959 Man-Made Fiber Table, less than a year ago. [TEXTILE WORLD, Sept. '59, p. 67.]

They are Avril, Avlin, Corval, Topel, Zantrel, Arnel 60, Fortrel, Vycron, Rhovyl, Lycra, Vyrene, and Merinova.

Some of these fibers are brand new. Some are improved versions of older fibers. Some are imports described for the first time in this Fiber Table. All are of great interest to textile manufacturers.

Here are some facts about these fibers:

Avril and Avlin (rayon)

These two fibers, produced by American Viscose Co., are fundamentally viscose rayon. But new properties have been developed that make them vastly different from ordinary rayon.

Avril (formerly called Fiber 40) has wet stiffness properties comparable to cotton. Increased resistance to caustic treatment permits mercerization. Fabrics made from the fiber can be dimensionally stabilized by compressive shrinkage. Residual shrinkage is about 1% after repeated launderings.

Avlin, formerly known as Fiber RD 100, is a multicellular fiber, which when wet and dried, will bond itself firmly to other cellulosic fibers. The bonding gives a firm linen-like hand to fabrics. Another feature of this self-bonding property is that it permits the formation of paper and nonwoven fabrics from the fiber.

The importer and future producer, Hartford Fibers Co., has applied for a copyright on the trade name "Zantrel Polynosic Rayon."

Arnel 60 (triacetate)

A new type of Arnel staple that can be used to make finer yarns and lighter-weight cloth constructions is expected to substantially broaden and expand markets for the triacetate fiber.

Called Arnel 60, the fiber has been under development by Celanese Fibers Co. since 1954. It is currently being produced on a pilot-plant scale in 1½ dpf. and 3 dpf. semidull luster.

Arnel 60 is made by an entirely new process and cannot be produced on equipment used for producing conventional triacetate fiber. It has higher strength than conventional Arnel and will be sold at a premium price. It is identical to present Arnel in all other characteristics.

Experimental fabrics made from Arnel 60 are currently being produced and evaluated. It is estimated that the first commercial fabrics of the new fiber should be available in small quantities for Fall 1960 lines. Increased amounts will be available for Spring 1961 fabrics if development and evaluation proceed as planned.

Vycron and Fortrel (polyester)

Two new polyester fibers, Vycron and Fortrel, became commercially important in recent months, making a total of four now on the market.

textile materials, is being sold to textile manufacturers for fabrication into goods made on equipment such as tricot, circular, full-fashion, and Kidde warp knitting machines as well as lace machines and looms.

Fabrics from these machines are made into underwear, girdles, corsets, brassieres, panties, and other intimate apparel. In addition, fine-woven swimsuit fabrics are being produced from ultrasheer Vyrene yarns, and a variety of sportswear applications are under development.

Covered Vyrene yarns are currently in commercial production, and plans are underway to expand production facilities.

Rhovyl (vinyon)

Rhovyl 55 and Rhovyl T, two forms of vinyon manufactured in France, are being imported into the United States by Rhovyl Co. at the rate of more than 1-million pounds per year.

Rhovyl 55 is a shrinkable fiber capable of shrinking up to 55% at 212° F. Variations are Rhovyl 30 and Rhovyl 15, which shrink 30% and 15% respectively. Rhovyl T is a nonshrinkable fiber that is dimensionally stable and will not shrink at temperatures up to 212° F.

End uses for Rhovyl 55 are suede fabrics, bulk yarns, three-dimensional fabrics, pile fabrics, filter cloths, industrial work clothes, and blends with a worsted hand.

Rhovyl T offers economies in blending with wool and prevents shrinkage during

a number of improved types of yarn have been introduced.

American Enka has developed a new bright-luster viscose staple fiber for use in chenille bedspreads, both tufted and woven. The fiber is said to offer excellent covering characteristics and bloom.

American Bemberg is offering Cuprammonium HH yarn spun by the continuous process in deniers from 50 to 300. Higher-denier regular filament yarn is also being spun in deniers from 300 to 1,800 by the reel spinning process. New novelty yarns with smooth slubs, solution-dyed nubby yarns, Cupioni yarns, intermittently dyed yarns, and other specialties are available in a wide range of deniers.

American Viscose Corp. recently placed its Avron on the market. Avron is a high-strength rayon staple for use in apparel and home furnishings. Super L, the company's smooth rayon staple for the carpet industry, is finding wider markets in new styles and construction of carpets. New applications are being found for Avicron, a permanently crimped filament yarn, and for the Colorspun solution-dyed fibers.

Beaunit is stressing continued physical improvements in tire cord and apparel yarn.

Nylon

Nylon producers continued to expand production facilities as new markets opened up. Most of the increased production is in the tire-cord field. Replacement tires made with nylon yarn are now said to account for better than 40% of the

that it permits the formation of paper and nonwoven fabrics from the fiber.

Corval and Topel (cross-linked rayon)

Corval and Topel, cross-linked cellulosic fibers, are classified as rayon by the Federal Trade Commission. But their molecular structure is said to make the fibers chemically and physically different from other cellulosic fibers. Water absorbency and swelling properties are comparable to those of cotton, and fabric made from the fibers is said to have reasonably good inherent dimensional stability to laundering.

Corval has a soft, bulky, wool-like hand and is suitable for blending with wool and man-made fibers such as the acrylics. Blended with Orlon, for example, Corval absorbs dyes well, resists fuzzing and pilling, and pleats permanently.

Topel can blend with cotton, acetate, and nylon to produce fabrics with a soft hand and good appearance. Level, even shades are the result with dyes commonly used on cotton and rayon. Producer of both fibers is Courtauld's (Alabama), Inc.

Zantrel (polynosic rayon)

Zantrel, at present imported in relatively small quantities from France, is expected to be in commercial production in the United States this fall. This fiber, like the cross-linked rayons, falls into a special category that makes it different from ordinary rayon.

Chemically Zantrell differs from conventional rayon in that the molecules are twice as long and more compactly spaced. Outstanding properties in the wet state are high breaking strength, low breaking elongation, and high elastic recovery. The fiber has a relatively low degree of water absorption, and withstands the action of caustic solutions. Fabrics made from the fiber have a high degree of dimensional stability.

End uses include a broad range of wash-and-wear fabrics, men's and women's wear, and shirtings.

Fortrel, became commercially important in recent months, making a total of four now on the market.

Beaunit Mills is currently offering variations of Vycron in the form of staple fiber, filament, tow, and direct-spun yarns. Capacity is 10- to 12-million pounds.

Vycron is used in wash-and-wear fabrics because of its wrinkle-resistant qualities and affinity for dyes that are fast to sunlight and laundering. The fiber can be blended with cotton and with other man-made fibers.

Fortrel, formerly called Teron, is being produced in commercial quantities by Fiber Industries, Inc., in its new plant at Shelby, N. C. Fiber Industries is a subsidiary of Celanese Corp. of America and Imperial Chemical Industries, the latter of Britain. Full production is expected to be 40-million pounds. Properties and end uses are similar to those of Dacron.

Lycra and Vyrene (spandex)

Lycra, the seventh fiber to be introduced by Du Pont, is a multifilament bundle joined together to form a monofilament yarn that stretches and snaps back into place like rubber.

The fiber, formerly known as Fiber K, is readily dyeable and may be used either covered or uncovered in foundation garments, swimwear, brassieres, sock tops, and a wide variety of other applications. It is said to be especially resistant to perspiration, cosmetic oils, and lotions.

A commercial production unit is now under construction. Current supplies are limited to those available from pilot-plant facilities.

Vyrene, a synthetic elastomer composed of polyurethane, has been developed by United States Rubber Co. to extend the use of its elasticized yarns, which up to the present time have been made from rubber cores and sold under the trade name of Lastex.

Compared with natural rubber, Vyrene has superior resistance to oxidation, chafing, and drycleaning damage. The yarn, covered with nylon, cotton, and other

Rhovyl T offers economies in blending with wool and prevents shrinkage during washing. It does not felt, and it improves crease resistance of the wool blend. Blended with viscose, the resulting fabric is crease resistant without the use of finishing agents. Rhovyl T is also blended with nylon for use in underwear.

Merinova (azlon)

Merinova, a protein fiber manufactured by Snia Viscosa of Italy and imported by Charlotte Fibre Co., is being shipped into the United States currently at a rate of 200,000 to 300,000 pounds per year. The fiber has many characteristics of wool, especially breaking tenacity, dyeing qualities, and heat resistance. Most of the available fiber is used in felting operations; some is spun and woven.

Older Fibers Seek New Markets

The new fibers shown on this supplement to the 1959 Man-Made Fiber Table are exciting, but most of them are still in something of an embryonic stage compared with the 21 fibers described in the basic table published last September. The older fibers are not taking competition lying down. Here's what's going on across the board:

Rayon

Relatively few basic changes have been made this year in the physical and chemical properties of conventional viscose, cuprammonium, and fortisan rayon; but

tion is in the tire-cord field. Replacement tires made with nylon yarn are now said to account for better than 40% of the market.

Allied Chemical Corp. plans to triple its capacity for production of Golden Caprolan nylon 6 tire cord. At the same time, the company will build a new facility to produce fine-denier Caprolan nylon for apparel and home-furnishing applications, aided with technical assistance and machinery from Snia Viscosa of Italy.

Dow Chemical Co. is building a new plant for the production of Nylon 6 filament yarn primarily for use in tire manufacturing. Capacity will be 12-million pounds per year.

Other companies that are either building or increasing facilities for the production of nylon tire cord are Beaunit Mills, Inc., and Firestone Tire & Rubber Co.

In the field of nylon fashion yarns, Du Pont brought out several new versions of the fiber. Type 90 "Sparkling Nylon" was introduced to give a unique sparkling effect to women's party-type hosiery. Type 560 was developed to give apparel fabrics and home furnishings a dry hand, improved cover, and luster highlights. Du Pont also announced a new finishing process for nylon satinette that imparts a rich luster and soft creamy hand to tricot lingerie.

American Enka Corp. introduced a new extra-white nylon called "Blanc de Blancs" in which the whitening agent is added directly to the polymer. Fiber is

Terminology a

Note: These are simplified definitions. For complete definitions, see ASTM *Standards on Textile Materials.*

Breaking Tenacity – Tensile stress at rupture of a specimen, expressed by grams per denier.

Tensile Strength – Tensile stress at rupture of a specimen, expressed by pounds per square inch.

Elongation – The extension (in the direction of load) of a fiber, caused by a tensile force. Expressed as a percentage of original length, elongation may be measured either at the point of break or at a specified load.

Elastic Recovery – The percentage of extension immediatetly recovered by a fiber after removal of a tensile force. (A thorough discussion of this property will be found in *Textile Fibers, Yarns & Fabrics,* Kaswell, E. R., Reinhold Publishing Co., N. Y., pp. 32 to 47.)

Average Stiffness – The ability of a fiber to carry a load without deformation. This property is based on the

0 Supplement

ith 12 Important New Fibers

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Nylon

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designed for goods in special need of white brilliance and for goods that are not normally dyed. Enka's nylon plant will be expanded to 20- to 22-million-pound capacity early in 1961.

Industrial Rayon Corp. has expanded its nylon operations by developing a new bulked filament yarn for use in floor coverings. The company plans to enlarge its facilities.

Acrylic

Acrylic production is expected to reach 200-million pounds per year in the near future. New outlets will be largely in the apparel, carpet, and upholstery fields.

Du Pont brought out several new types of Orlon during the last year. Included are Sayelle with crimping characteristics that simulate wool, Type 37 carpet staple for use in blends with wool or modacrylics, and Type 38 tow for use in two-height pile fabrics. The last named fiber can be dyed, stretched, and cut to staple that will shrink up to 38% when subjected to heat.

Dow Chemical Co. is pushing Zefran for use in wool and cotton blends for year-around apparel fabrics. The company's W-2 blend has an average denier of 2.5; the W-4 blend averages 4.5 denier.

Chemstrand has a controlled merchandising program aimed at the sweater trade for its Acrilan 16 fiber. American Cyanamid Co. is getting production underway in its new 27-million-lb.-capacity plant designed for the production of acrylic staple and tow.

Olefin

Polypropylene has made great strides in acceptance and production during the last year. Several new companies have gotten into the act, and older producers have expanded operations. All of the companies report improved properties in the form of higher tenacity and tensile strength and better ultraviolet stabilization. Most of the present production goes into outdoor textiles and cordage.

Reeves Brothers, Inc., pioneer in the field, brought out Reevon Olefin 800 during the latter part of 1959. Commercial production of this low-denier polypropylene fiber is developing steadily for both continuous multifilament yarn and staple fiber.

Firestone Synthetic Fibers Co. is now in regular production of polypropylene and high- and low-density polyethylene. The company reports that polypropylene in monofilament form shows great promise.

Dawbarn Brothers, Inc., recently put into commercial production a polypropylene controlled-slub monofilament yarn and multifilament yarn of 50 deniers per filament. The company also has developed a high-shrink polyethylene monofilament 400- and 600-denier yarn that will soon be available.

United States Rubber Co. is now commercially producing polyethylene and polypropylene. Southern Lustrus Corp. is expanding its facilities for producing monofilament and multifilament polypropylene. Beaunit Mills is making polypropylene yarn on a pilot-plant scale.

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plant designed for the production of acrylic staple and tow.

Polyester

Polyester production continues to increase. Indications are that better than 200-million pounds per year will soon be on the market. Developments in this field include the introduction of Dacron Type 62 by Du Pont. The fiber has a luxurious hand, dyeability, and printability traditionally associated with silk. Type 62 can be dyed readily with cationic colors in a wide range of shades. It can be printed with excellent definition.

Du Pont also recently introduced Dacron Fiberfill batting for furniture, a product that provides excellent resilience and shape retention. It is nonmatting, nonallergenic, and mildew resistant.

The latest production-capacity figure for Dacron announced by Du Pont is 56-million pounds a year.

Eastman Chemical Co. has expanded end-use applications for its polyester fiber Kodel. In the knitting field, Kodel blends of natural and man-made fibers are being used in sport shirts, half hose, bulky knit sweaters, and underwear. Other new end uses include Madras-type plaids, machine-washable sweaters, and wool-system suitings. Solution-dyed Black Kodel, a new development, is said to permit color effects never before available.

Production capacity for Kodel is estimated to be in excess of 20-million pounds per year.

propylene. Beaunit Mills is making polypropylene yarn on a pilot-plant scale.

Other Developments

Du Pont introduced two improved acetate yarns, Type 22 for upholstery and a fine-denier thick-and-thin yarn for special effects.

Eastman brought out its all-Estron acetate for women's apparel lines and continued to push Color-locked Chromspun for sports wear. This company also introduced the first 100% Verel modacrylic pile fabric for linings and completed development work on Verel HB for carpets.

Dow Chemical Co. is beating the drum for Rovanna, a microtape yarn that is very susceptible to embossing and has a high tear strength when woven into lightweight fabrics. This yarn can be compressed and shaped under heat and pressure to produce three-dimensional effects.

There were no new technical developments reported in the field of glass-fiber yarn, but most producers say that production facilities are being expanded. Total production in 1959 was 147-million pounds, up 43% over 1958.

Full manufacturing rights to Darvan, the only nytril fiber manufactured in the United States today, were sold early this year to Celanese Corp. of America by B. F. Goodrich Chemical Co. No specific plans for the fiber's future have been announced to date.

Terminology and References

r square inch.

n—The extension (in the of load) of a fiber, caused force. Expressed as a per- original length, elongation easured either at the point r at a specified load.

ecovery—The percentage n immediately recovered by a fiber after removal of a tensile force. (A thorough discussion of this property will be found in *Textile Fibers, Yarns & Fabrics*, Kaswell, E. R., Reinhold Publishing Co., N. Y., pp. 32 to 47.)

Average Stiffness—The ability of a fiber to carry a load without deformation. This property is based on the modulus of elasticity. (Source: *19th Edgar Marburg Lecture*, by H. DeW. Smith, ASTM, Philadelphia, pp. 16 to 18.)

Average Toughness—The ability of a fiber to endure large, permanent deformations without rupture. (Source: H. DeW. Smith; see Avg. Stiffness.)

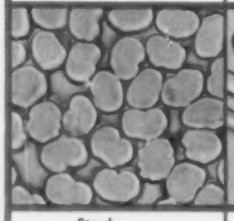
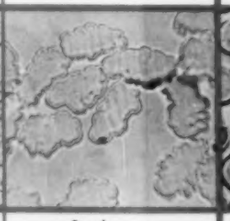
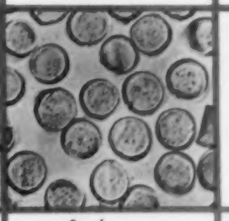
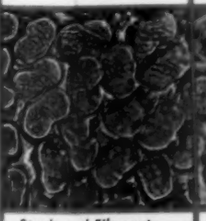
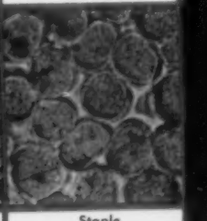
Specific Gravity—The simple ratio of the weight of a given volume of the fiber to an equal volume of water, taken as standard at stated temperatures.

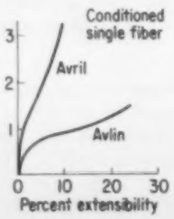
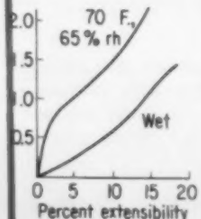
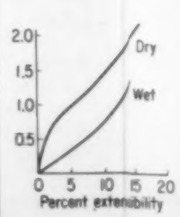
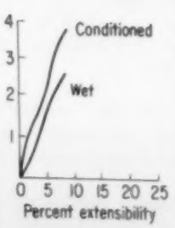
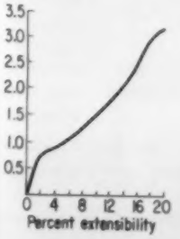
Water Absorbency—Covers moisture regain, moisture absorbency, and q-water imbibition at specified temperatures and humidities. Q-water imbibition at specified temperatures and humidities. Q-water imbibition is the water absorbency of a fiber at 100% r.h. when the equilibrium is approached from the wet side. The calculation usually is made with this formula:

$$q = \frac{\text{weight of centrifuged fiber} - \text{bone-dry weight}}{\text{bone-dry weight}} \times 100$$

(Source: Celanese Corp.)

TEXTILE WORLD'S MAN-MADE-FIB
1960 SUPPLEMENT

Properties Data on fiber properties obtained from the fiber manufacturers. (See "Terminology and Reference" on opposite side of table)	RAYON A manufactured fiber composed of regenerated cellulose, as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15% of the hydrogens of the hydroxyl groups.				AZLON A manufactured fiber in which the fiber-forming substance is composed of any regenerated naturally occurring proteins.	VINYON A manufactured fiber in which the fiber-forming substance is any long-chain synthetic polymer composed of at least 85% by weight of vinyl-chloride units. (–CH_2–CHCl–).	
	Viscose		Cross Linked		Polynosic	Merinova	Rhovyl-55	Rhovyl-T
Microscopic Cross Section Cross sections shown are representative of the type of fiber *Asterisks denote tradenames.	*Avril	*Avlin	*Topel	*Corval	*Zantrel	Cylindrical — almost round		
								
	Staple	Staple	Staple	Staple	Staple	Staple	Staple and Filament	Staple
Breaking Tenacity (grams per den.) Std.	3.3	1.6	2.0 to 2.3	2.0 to 2.2	3.4	1.1	1.6 to 2.4	0.7 to 1.3
Breaking Tenacity (grams per den.) Wet	2.2	0.9	1.4 to 1.6	1.2 to 1.3	2.7	0.6	1.6 to 2.4	0.7 to 1.3
Breaking Tenacity (grams per den.) Std. Loop	2.3	1.1	1.2 to 1.4	1.0 to 1.1			83% of yarn strength	87% of yarn strength
Breaking Tenacity (grams per den.) Std. Knot	2.1	1.0	0.8 to 1.2	0.7 to 1.1			75% of yarn strength	83% of yarn strength
Tensile Strength (lbs. per sq. in.)	64,000	30,000	40,- to 50,000	40,000 to 50,000			28,700 to 43,000	12,000 to 22,400
Breaking Elongation (%) Std.	9.5	26.0	14 to 16	12 to 15	10	50	16 to 40	120 to 180
Breaking Elongation (%) Wet	10.5	39.5	17 to 19	12 to 17	12	60	16 to 40	120 to 180
Elastic Recovery (%)			50 to 55 at 3% extension	50 to 55 at 3% extension	95		50 at 80% 57 at 33%	0 at 20% 100 at 2%
Average Stiffness (gpd.)	35	6	14	16			10	0.6

Average Stiffness (gpd.)	35	6	14	16			10	0.6
Average Toughness	0.15	0.24	0.16	0.14			0.25	1.35
Specific Gravity	1.5	1.5	1.46 to 1.53	1.46 to 1.53	1.51	1.29	1.38	1.38
Water Absorbency (%) 70° F., 65% r.h.	12	12	13	13	11.5	17	0	0
70° F., 95% r.h.						60.5	0.35	0.35
100% r.h. (q-water inbibition)			60	40 to 50	60			
Effect of Heat	Does not melt; loses strength at 300 F.; decomposes at 350 to 400 F.	Does not melt; loses strength at 300 F.; decomposes at 350 to 400 F.	Does not melt; decomposes at 350 to 400 F.	Similar to other rayons.	Does not melt; resists degradation; decomposes about 300 F.	Similar to wool.	Does not burn; shrinks at 168° F.; melts at 350° F.	Does not burn; melts at 350° F.
Effect of Acids	Similar to cotton. Hot dilute or cold concentrated acids disintegrate fiber.	Similar to cotton. Hot dilute or cold concentrated acids disintegrate fiber.	Similar to ordinary viscose.	Similar to other rayons.	Weakens in strong solutions.	Resistant.	No effect.	No effect.
Effect of Alkalis	Strong solutions swell and reduce strength, but less than for other rayons. Can be mercerized.	Strong solutions cause swelling and reduce strength.	Reduced swelling compared to ordinary rayon.	Highly resistant to caustic alkalis.	Similar to cotton.	Sensitive.	No effect.	No effect.
Effect of Other Chemicals	Attacked by strong oxidizing agents; not damaged by bleaches.	Attacked by strong oxidizing agents; not damaged by bleaches.	Similar to other rayons.	Similar to other rayons.	Bleached by hypochlorite or peroxide.	Bleached by peroxides; damaged by sodium carbonate.	No effect.	No effect.
Effect of Organic Solvents	Generally insoluble. Soluble in cuprammonium and a few complex compounds.	Generally insoluble. Soluble in cuprammonium and a few complex compounds.	Insoluble in cuprammonium. Generally insoluble except for a few complex compounds.	Same as for Topel.	Resistant.	Resistant.	Affected by some phenolic compounds.	Affected by some phenolic compounds.
Dyes Used	Same as for cotton.	Same as for cotton.	Same as for cotton and rayon but with slightly higher rate of exhaustion.	Same as for cotton and rayon; may dye lighter. No affinity for acid colors.	Direct, vat, azoic, reactive, sulfur, pigment.	Acid, wool, chrome, and some direct dyes.	Disperse dyes.	Disperse dyes.
Resistance To Mildew	Attacked.	Attacked.	Same as for rayon.	50% more resistant than rayon or cotton.	Attacked.	Good.	Not attacked.	Not attacked.
Identification	Does not melt; burns readily with little ash; insoluble in acetone.	Does not melt; burns readily with little ash; insoluble in acetone.	Insoluble in cuprammonium.	Insoluble in cuprammonium. Does not gel in caustic soda at 7% concentration.	Does not melt; burns with little ash; has round cross section.	Burned fiber smells like burned hair.	Soluble in mixture of carbon disulfide and acetone.	Soluble in mixture of carbon disulfide and acetone.
Typical Stress-Strain Curves (load in grams per denier)						Not available		

ADE-FIBER TABLE

ENT

Compiled by the Editors of TEXTILE WORLD

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VINYON

A manufactured fiber in which the fiber-forming substance is any long-chain synthetic polymer composed of at least 85% by weight of vinyl-chloride units.

(–CH_2–CHCl–).

SPANDEX

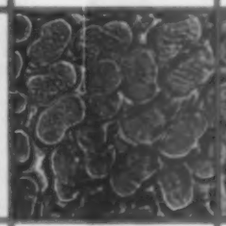
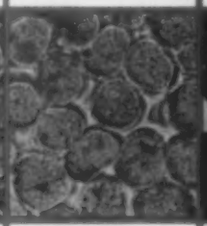
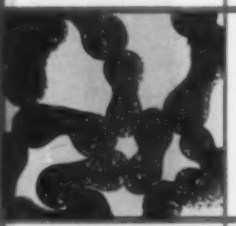
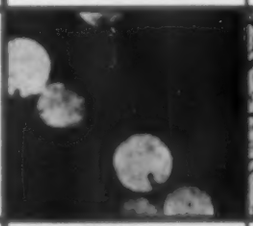
A manufactured fiber in which the fiber-forming substance is any long-chain synthetic polymer composed of at least 85% by weight of a segmented polyurethane.

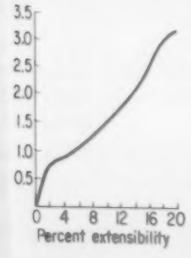
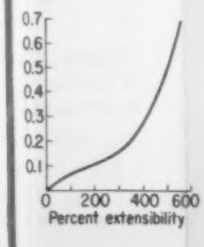
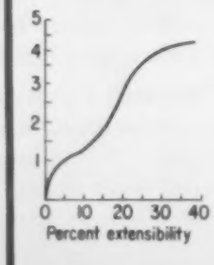
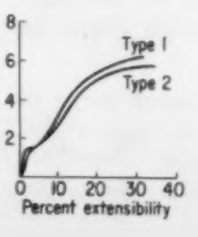
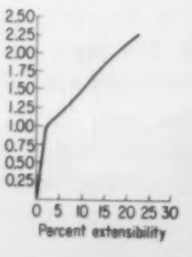
POLYESTER

A manufactured fiber in which the fiber-forming substance is any long-chain synthetic polymer, composed of at least 85% by weight of an ester of a dihydric alcohol and terephthalic acid (p–HOOC–C_6H_4–COOH).

ACETATE

A manufactured fiber in which the fiber-forming substance is cellulose acetate. Where not less than 92% of the hydroxyl groups are acetylated, the term triacetate may be used as a generic description of the fiber.

Rhovyl-55	Rhovyl-T	Lycra	Vyrene	Fortrel	Vycron		Triacetate Arnel 60
					Type 1	Type 2	
			Not available				
Staple and Filament	Staple	Monofilament	Monofilament	Staple	Staple and Filament		Staple
1.6 to 2.4	0.7 to 1.3	0.6 to 0.8		4 to 4.3	6.3	5.6	2 to 2.3
1.6 to 2.4	0.7 to 1.3			4 to 4.3			1.5 to 1.7
83% of yarn strength	87% of yarn strength		0.5 to 0.6	4 to 4.3		2.95	
75% of yarn strength	83% of yarn strength						185
28,700 to 43,000	12,000 to 22,400	9,000	9,000	70,000 to 76,000			33,000 to 38,000
16 to 40	120 to 180	520 to 610	700	30 to 45	31	35	22 to 27
16 to 40	120 to 180		700	30 to 45			33 to 38
50 at 80% 57 at 33%	0 at 20% 100 at 2%	95 at 50%	98 after 6 cycles to 600		98 at 2% 69 at 5% 48 at 10%	93 at 2% 44 at 5% 33 at 10%	86 at 3% 55 at 8%
10	0.6	0.13		11	20	16	10

10	0.6	0.13		11	20	16	10
0.25	1.35	2.00		0.6 to 0.9	1.75	1.75	0.24
1.38	1.38	1.0		1.38	1.38	1.38	1.3
0	0	0.3	Less than 1%	0.4	0.6	0.6	4.0
0.35	0.35		Less than 1%				9.0
					2.0	2.0	15 to 18
Does not burn; shrinks at 168° F.; melts at 350° F.	Does not burn; melts at 350° F.	Yellows and degrades over 300° F.; melts at 482° F.; sticking temperature 347° F.	Shrinkage starts at 180° F.; some thermoplasticity evident above 220° F. Tensile strength drops sharply above 250° F.	Melts at 480° F.	Softens at 210° C.; melts at 235° C.		Melts at approximately 300° C. (572° F.). Heat-treated Arnel will not stick when ironed at temperatures up to 250° C. (482° F.).
No effect.	No effect.	Good resistance to most acids.	Resistant to cold dilute acids. Slowly dissolved by hot concentrated mineral acids. Slowly hydrolyzed by hot dilute acids.	Good resistance to most mineral acids. Dissolves with at least partial decomposition by concentrated solutions of sulfuric acids.	Good resistance to mineral acids. Dissolves slowly in concentrated sulfuric and formic acids.		Similar to acetate; unaffected by dilute solutions of weak acids; strong acids may cause deterioration.
No effect.	No effect.	Good resistance to most alkalis.	Resistant to cold dilute alkali; rapidly hydrolyzed by hot alkali.	Good resistance to weak alkalis and moderate resistance to strong alkalis at room temperatures. Disintegrated by strong alkalis at boiling temperatures.	Good resistance to weak alkalis and to moderate concentrated alkalis at room temperature. Strong hot alkalis decompose fiber.		Little effect at 9.5 pH under normal scouring and dyeing conditions; saponified by high alkali concentrations.
No effect.	No effect.	Generally good resistance.	Generally resistant. Decomposed by sodium chlorite and by nitrous acid. Dissolved by hot activated zinc chloride or cold ammonium thiocyanate.	Generally good resistance. Excellent resistance to bleaches and other oxidizing agents.	Generally unaffected by most common chemicals.		Attacked by strong oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions.
Affected by some phenolic compounds.	Affected by some phenolic compounds.	Generally insoluble.	Insoluble in common solvents. Dissolves in hot dimethyl formamide.	Generally insoluble. Soluble in some phenolic compounds.	Unaffected by most solvents.		Unaffected by common solvents; swollen by acetone, other ketones, and trichloroethylene. Soluble in methylene chloride.
Disperse dyes.	Disperse dyes.	Has affinity for most classes of dyes.	Disperse and acid dyes preferred. Other classes can be used with special precautions.	Disperse (acetate), developed (azoic), and cationic (for some types), with carrier, or at high temperatures.	Disperse, developed, and cationic dyes with carrier or under pressure at high temperatures.		Disperse azoic (acetate) dyes, developed (azo) colors, vat, acid, and basic dyes can be applied by special methods.
Not attacked.	Not attacked.	Not attacked.	Not attacked.	Not attacked.	Not attacked.		Extra high.
Soluble in mixture of carbon disulfide and acetone.	Soluble in mixture of carbon disulfide and acetone.	Soluble in boiling dimethyl formamide; insoluble in acetone, benzene, concentrated hydrochloric acid, and concentrated formic acid.	Elastic properties with solubility in hot alkali.	Melts before burning. Soluble in hot metacresol but not soluble in acetone or concentrated formic acid.	Distinguishable from other polyesters by characteristic infrared spectrum and x-ray diffraction pattern.		Soluble in methylene chloride alcohol; separated from acetate by hot benzyl alcohol.
		Not available					

Better Way to Figure Blends

If blending is your problem, try this surer way. It will simplify the math, eliminate sample-weighting errors, guide you to low-cost blending for your economy fabrics.

BIG PROBLEM in using Micronaire readings is weighting them for number of fibers. Yet that's the only way to get an accurate average of true fineness. Trouble is, errors creep in when you try to weight samples to obtain the mean.

Here, then, is a way to eliminate those errors. It uses the reciprocals of Micronaire readings (Table 1, next page). With them (Table 2), you can economically blend low Micronaire and spotted to yellow-stained cottons for economy fabrics. In fact, if reciprocals are printed opposite Micronaire readings (Table 3), you can find the arithmetic means you need without having to weight samples.

The system works this way:

The air-flow instruments with which we measure cotton-fiber fineness today are calibrated in terms of weight per inch. For example, a 500-lb. bale of 1-in. cotton having a Micronaire reading of 5.0 would contain only half as many fibers as a similar bale having a Micronaire reading of 2.5.

It takes only a moment's reflection to see that this is a reciprocal relationship between the number of fibers in a bale of cotton and the Micronaire reading.

The Micronaire reading of a blend is the harmonic mean (weighted for number of fibers) of the bales in the blend—not the arithmetic mean. You can use this reciprocal relationship to make up mill blends that will maintain uniform mill operation and consistent product quality.

You can calculate the harmonic mean of the 5.0 and the 2.5 bales, for example, as follows:

$$\text{Harmonic mean} = \frac{5.0+2.5+2.5}{3} = 3.33$$

For mill use, the formula is:

$$\frac{2 \text{ bales}}{\frac{1}{5.0} + \frac{1}{2.5}} = 3.3$$

Or it can be written:

$$\frac{\Sigma N}{\frac{N_1}{M_1} + \frac{N_2}{M_2} + \frac{N_3}{M_3} \cdots} = X$$

Where:

ΣN = Total number of bales
N = Number of bales of a given Micronaire reading
M = Micronaire reading
X = Harmonic mean of the blend

FLEXIBLE FORMULA

You can use this formula for any given number of bales, even though they may have widely different Micronaire readings. For example, to make a blend of 30 bales with a Micronaire reading of 4.2, select the reciprocal of 30 bales for 4.2 in Table 1. The reciprocal 7.143. Using Table 2 take bales from available stock in such way that the sum of the reciprocals adds up to 7.143, as follows:

Number of Bales	Micronaire reading	Reciprocals
4	5.2 (5.0 +)	0.769
9	4.7 (4.5 to 4.9)	1.915
8	4.2 (4.0 to 4.4)	1.905
6	3.7 (3.5 to 3.9)	1.622
3	3.2 (3.0 to 3.4)	0.938
30		7.149

30 = 4.196 (round to 4.2)
7.149

There's a change in processing efficiency between the 3.0-3.4 and 2.5-2.9 groups. Fiber in the latter group, and particularly the 2.4-and-

By EARL E. BERKLEY and S. C. MAYNE, JR., Fiber Spinning Laboratory, Anderson, Clayton & Co., Inc., Houston, Texas

Table 1—Reciprocals for One or More Bales of Cotton

No. of bales	Micronaire Readings 5.0+ (5.2)	4.5 to 4.9 (4.7)	4.0 to 4.4 (4.2)	3.5 to 3.9 (3.7)	3.0 to 3.4 (3.2)	2.5 to 2.9 (2.7)	2.4– (2.2)
1	0.192	0.213	0.238	0.270	0.312	0.370	0.454
2	0.385	0.426	0.476	0.540	0.625	0.740	0.909
3	0.577	0.638	0.714	0.811	0.938	1.111	1.364
4	0.769	0.851	0.952	1.081	1.250	1.482	1.818
5	0.962	1.064	1.190	1.351	1.562	1.852	2.273
6	1.154	1.277	1.429	1.622	1.875	2.222	2.727
7	1.346	1.489	1.667	1.892	2.188	2.593	3.182
8	1.538	1.702	1.905	2.162	2.500	2.963	3.636
9	1.731	1.915	2.143	2.432	2.812	3.333	4.091
10	1.923	2.128	2.381	2.703	3.125	3.704	4.545
11	2.115	2.340	2.619	2.973	3.438	4.074	5.000
12	2.308	2.553	2.857	3.243	3.750	4.444	5.455
13	2.500	2.766	3.095	3.514	4.062	4.815	5.909
14	2.692	2.979	3.333	3.784	4.375	5.185	6.364
15	2.885	3.191	3.571	4.054	4.688	5.556	6.818
16	3.077	3.404	3.810	4.324	5.000	5.926	7.273
17	3.269	3.617	4.048	4.595	5.312	6.296	7.727
18	3.462	3.830	4.286	4.865	5.625	6.667	8.182
19	3.654	4.042	4.524	5.135	5.938	7.037	8.636
20	3.846	4.255	4.762	5.405	6.250	7.407	9.091
21	4.038	4.468	5.000	5.676	6.562	7.778	9.545
22	4.231	4.681	5.238	5.946	6.875	8.148	10,000
23	4.423	4.894	5.476	6.216	7.188	8.518	10.454
24	4.615	5.106	5.714	6.486	7.500	8.889	10.909
25	4.808	5.319	5.952	6.755	7.812	9.259	11.364
26	5.000	5.532	6.190	7.027	8.125	9.630	11.818
27	5.192	5.745	6.429	7.297	8.438	10.000	12.273
28	5.385	5.957	6.667	7.568	8.750	10.370	12.727
29	5.577	6.170	6.905	7.838	9.062	10.741	13.182
30	5.769	6.383	7.143	8.108	9.375	11.111	13.636
40	7.692	8.511	9.524	10.811	12.500	14.815	18.182
50	9.615	10.638	11.905	13.514	15.625	18.518	22.727

FINENESS RANGES of Upland cottons are grouped into ranges of 0.5 Micronaire readings, ± 0.2 away from mean.

. . . *Begins on page* 49

below group, will break extensively in cleaning and carding. These bales should be blended with enough coarser fiber to give the resilience and felting for good processing.

By making up a more extensive table, you can use individual bales within each of these groups. There's a certain amount of variation within each bale, however, and the limitations in getting the correct amount of each Micronaire range in all parts of the blend make it difficult to justify the work required to use reciprocals of individual bales.

FINE FIBER FIRST

A word of caution: The ability of cotton to open or fluff up after compression to high density is proportional to the fiber fineness, among other factors. The fine, immature bales of 2.4 and below on the Micronaire resist opening and tend to remain in dense cakes. When you're feeding high-density cotton through a hopper-feeder, the finest fiber will tend to feed out first—and the coarsest fiber, which opens more readily, will be last to feed out.

The fine fiber, which does not stuff up quickly, falls to the bottom

Table 2—Micronaire Ranges and Mean Values

Mean Micronaire reading of mix	(5.0+) 5.2	(4.5 to 4.9) 4.7	(4.0 to 4.4) 4.2	(3.5 to 3.9) 3.7	(3.0 to 3.4) 3.2	(2.5 to 2.9) 2.7	(2.4−) 2.2
4.7 (6.383)*	11 bales	10 bales	9 bales				
	12	9	7	2 bales			
	14	8	5	3			
	16	6	4	3	1 bale		
4.2 (7.143)*		9	14	7			
	2	9	10	8	1		
	4	9	8	6	3		
	8	6	6	5	5		
3.7 (8.108)*			9	14	7		
		5	7	10	5	3 bales	
	2	5	6	9	3	5	
	5	5	5	6	4	3	2 bales
3.2 (9.375)*				11	11	8	
			2	10	10	7	1
		1	5	7	8	6	3
	1	2	5	5	7	6	4
2.7 (11.111)*					11	11	8
				3	8	10	9
			2	2	6	10	10
		1	2	2	5	9	11

* Reciprocal for 30 bales

NUMBER OF BALES within each Micronaire range that can be used for blends is shown with mean values indicated.

Table 3—Suggested Changes in Micronaire Scale

Micronaire	Reciprocal	Micronaire	Reciprocal	Micronaire	Reciprocal	Micronaire	Reciprocal
8.0	0.1250	5.1	0.1961	6.5	0.1538	3.6	0.2778
7.9	0.1266	5.0	0.2000	6.4	0.1562	3.5	0.2857
7.8	0.1282	4.9	0.2041	6.3	0.1587	3.4	0.2941
7.7	0.1299	4.8	0.2083	6.2	0.1613	3.3	0.3030
7.6	0.1316	4.7	0.2128	6.1	0.1639	3.2	0.3125
7.5	0.1333	4.6	0.2174	6.0	0.1667	3.1	0.3226
7.4	0.1351	4.5	0.2222	5.9	0.1695	3.0	0.3333
7.3	0.1370	4.4	0.2273	5.8	0.1724	2.9	0.3448
7.2	0.1389	4.3	0.2326	5.7	0.1754	2.8	0.3571
7.1	0.1408	4.2	0.2381	5.6	0.1786	2.7	0.3704
7.0	0.1429	4.1	0.2439	5.5	0.1818	2.6	0.3846
6.9	0.1449	4.0	0.2500	5.4	0.1852	2.5	0.4000
6.8	0.1471	3.9	0.2564	5.3	0.1887	2.4	0.4167
6.7	0.1493	3.8	0.2632	5.2	0.1923	2.3	0.4348
6.6	0.1515	3.7	0.2703				

RECIPROCALS printed opposite Micronaire scale will make it easy to determine mean without weighting samples.

and feeds out fast. That's why you must place the cotton of each fineness group (as indicated in Table 1) in separate hopper-feeders. You must regulate these feeders to assure the correct amount of fiber of each Micronaire range in a given blend.

You may need some deviation in the groupings shown here when available stocks are limited. But if you follow the principles outlined in this article, you shouldn't meet any really serious difficulties either in making up your different combinations of cottons or in blending your individual bales.

For simplification, the full range of fineness of Upland-type cottons has been grouped into ranges of 0.5 on the Micronaire with ± 0.2 away from the mean. The mean of each group is used in calculating the reciprocal to be used in making up the blends.

For all practical purposes, this should be representative of unculled cotton. But if a given stock contains a preponderance of bales on the low or the high side of the mean in any given group, you can recalculate the reciprocal for that group for blending purposes.

Two Companies Team Up,

Candlewick Yarns and Regal Rugs are linking up their management skills and their equipment and know-how these days in a venture that's bringing new yarns and rugs to a widening market. Here's how they do it.

TWO STRONG, well established producers of textiles from widely separated areas have joined hands to cut themselves a slice of the growing market for artistic rugs for floors and walls. (See photos on following pages.)

Eli Coplan, president of Regal Rugs, Inc., North Vernon, Ind., is the guiding hand in this new venture. In search of new types of yarns to make his new rugs, he went to a specialist in making tufted-carpet yarns, Wilson W. Rogers, general manager of Candlewick Yarn Mills, Inc., a subsidiary of Dixie Mercerizing Co., Dalton, Ga.

Regal President Coplan keeps a close check on manufacturing, finishing, and especially marketing. When he bought the North Vernon mill in 1941 it specialized in a two-piece bathmat set that retailed at $1 to $5 per set.

From its origin in 1932 the mill was operated unsuccessfully under several owners and managers until Coplan took over.

FINDING A PRODUCT

Soon after Coplan set up operations, competition grew so intense that he had to choose one of two courses: either (1) go out of business or (2) upgrade the product being made at Regal.

That's why Coplan added area rugs to his manufacturing roster. He then brought new fibers, new price lines, and new styling into his organization.

The trend toward easier housekeeping paved the way to creating a new area-rug market. And consumers rapidly responded to ease of care in high-style and color in area rugs. Today, consumers are willing to pay a good price for smaller rugs in order to get the versatility they desire.

GETTING A DESIGNER

Last year Regal made an important addition to its creative team in the person of William Hinz, who teaches basic and advanced design and color at the Chicago Art Institute. Hinz—and his wife—have for many years designed and made hooked rugs with price tags up to $1,500.

From strictly artistic work, they made their first business alliances in 1959 when they designed six rugs for Marshall Field, which were made in Japan. Last year they designed their first commercial line in association with Regal.

Their "hunt" series, a fast seller at the moment, consists of an owl, fox, lion, and zebra. The bush mane and tail of the lion are white Zefran-nylon on the two-color background of the lion's body and the rug. The suggested retail price of this 3x5-ft. rug is $29.95. This rug, like all Regal rugs, can be washed safely in a washing machine.

Other designs created by Hinz and designed by Regal for manufacturing on its modern tufting machines result in strong modern designs for floors. An unusual example that's currently successful in sales is a 3x7-ft. size for today's longer sofas.

Hinz's success—and Regal's—is shown by an award he has just received—the American Institute of Decorators Citation of Merit for outstanding achievement in design as exemplified by Regal area rugs.

Coplan thinks that the better retail stores are changing in their understanding of customer viewpoint and in their own sales methods—they're now pushing higher-style and higher quality rather than price alone. This changed buying climate has come largely as a result of growing use of hard-surface floor covers, particularly low cost, well styled vinyls.

Still using cotton as its basic fiber, Regal is now stressing the man-made fibers such as acrylics, nylon, acetate, and metallics for special qualities in its products. These fibers are being combined in oval, round, and rectangular rugs for bathrooms, living rooms, and even for offices.

The newest fiber to be used, and the most successful at present, is Zefran in blends with nylon, Verel, and other fibers. In Regal's product, Zefran blends are resilient, yet soft. An 80-20 Zefran-nylon blend, for example, simulates wool in appearance but the pile stands up straighter. In all of these rugs, Regal captures the feel of a handmade product.

CREATING A NEW YARN

Candlewick Yarn Mill developed the yarn that's most effective in Regal's newer rugs—80% Zefran and 20% nylon. Candlewick's carpet yarns are made both on the woolen

Find Two New Markets

and worsted systems and by means of a combination of both systems.

New equipment just installed at Candlewick such as Whitin Monarch spinning frames and new Meadows twister frames are contributing to a competitive edge and higher quality.

The Zefran-nylon blend is made from Dow 6-den., 3-in., bright Zefran and 6-in., 3-in., bright Du Pont Type 101 nylon.

The Zefran is processed on a Whitin worsted card. Raw stock is drawn from two 550-pound manufacturer's cartons into James Hunter standard AHC and AHT tandem card feed. Sliver is delivered into two roving cans of 18x42 inches. Production is 150 pounds per hour.

The nylon stock also comes from two 550-pound manufacturer's cases into the same type of Hunter card feeds. It is processed on Davis & Furber Woolen cards with Bromwell feeders into 15x36 in. cans. Production is 150 pounds per hour.

Part of the nylon is also run on worsted cards in the same way that Zefran is run except that delivery is into 16x36-in. roving cans. Nylon is delivered to the two small-size cans for later identification in blending at pin drafters. Card coilers are McDonough.

Card sliver of both Zefran and nylon is 200 grains per yard.

From carding, the sliver goes directly to Warner & Swasey pin drafters. The first pin-drafting operation is four ends of 200-grain Zefran and one end of 200-grain nylon. Delivery of the resulting 80%-Zefran 20%-nylon blend is 150 pounds per hour of 170 grains per yard. Draft is 5.9. Drawing cans are 15x42 inches. These machines, Model M-2350, have two heads with five ends drafted per head.

SPINNING DIRECT

The second pin-drafting operation is five ends of 170 grains. Delivery is 80 grains per yard at 380 pounds per hour into 18x42-in. cans. These M-3680 machines have four heads with five ends drafted in each head. Drawing cans are Continental Diamond and Kennett.

From pin drafters, the 0.104-hk. roving goes directly to Candlewick's newest machines—Whitin Monarch direct-spinning frames.

The two-apron drafting system of these spinning frames is excellent for Candlewick's carpet yarns. Draft of the Zefran-nylon yarn is 19.20. Front-roll speed is 140 rpm. Ring size is 5½ inches, and a 3¼- to 4-pound bobbin of 2s yarn is produced. Frames have 152 spindles. Spindle speed is 3500 rpm. Nylon travelers are used.

Candlewick has added several attachments to the Monarch frames, including Pneumafil. An overhead frame that's suspended from the ceiling to eliminate columns is installed to support the Parks-Cramer cleaners on a J-frame and the yarn creel.

FAST DOFFING

For speeding doffing, a truck with space for empty and full bobbins (made by Sunray Co.) for one entire side of the spinning frame is used. The truck has spindles at a 20-degree angle to permit fast removal and replacement of bobbins. Each side holds 40-bobbins.

From spinning, the 4-pound bobbins are taken to Foster winders for rewinding to cones. Winder speed is 275 yards per minute. Yarns at winders are treated with a sizing of Hydrowax emulsion. All broken ends and creeled yarns are rejoined with splicing glue to eliminate knots.

Doffed cones vary from a 2-lb. package 6 to 8 inches long with a 6-in. base to an 8-lb. package with a 10-in. base.

The mill is air conditioned, and atmospheric conditions throughout are held at 60% r.h. and 80 F.

Principal yarns for tufting at Regal are 1s, 2s, 2/2, 4/4, and 8/4. Fabric backing is cotton duck 36 to 54 inches wide of 8 to 24 oz. per square yard. The 8-oz. fabric is for lid covers.

The wider the rug, the heavier the backing fabric. Rugs are as small as 17x24 inches and as large as 4x6 feet.

Tufting machines are all new machines, and all are table models of two manufacturers—Broad Street Machine Co. and Cobble Brothers Machine Co. All overedging machines are Singer.

Tufting machines have from one to 32 needles. Gage, ⅛ to $\frac{5}{16}$ inches. Pile height, ⅜ to 2 inches. Speed of small machines, 2000 to 3200 rpm.; large machines, 2000 to 2500 rpm.

SPEEDING DYE JOBS

Regal's dyeing process for Zefran-nylon rugs is well standardized and highly productive.

Premetalized neutral-dyeing dyes are chosen for fastness and for their good workability on Zefran-nylon blends of this type. The bath is set at pH 6 to 7 with ammonium sulfate. The required dye is added to the cold liquor.

After the color is well distributed, the rugs are put in and run for 5 minutes cold, after which the temperature is raised to 200 F. over a 20-minute period.

The dyeing proceeds at 200 F. for 30 to 40 minutes or until the shade is matched. Then the lot is cooled, rinsed, extracted, dried.

For some shades, direct and after-treated direct dyes are used. In such cases, the color is exhausted onto the goods with common salt or Glauber's salt after the goods have been at full dyeing temperature for 30 to 40 minutes.

After they have been dyed, these rugs are given a latex backing that locks the tufts and provides a nonskid surface.

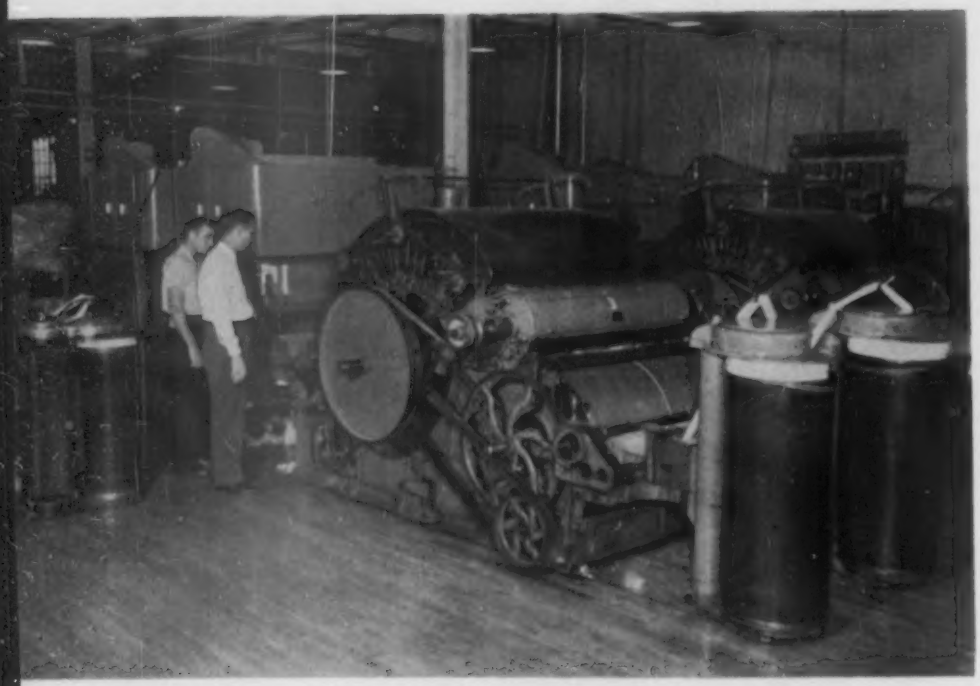
Backing is sprayed on while the goods move on a conveyor that takes them under banks of infrared heaters that dry, then cure the latex.

Now—to see how Candlewick and Regal use their equipment to turn out a quality rugs, turn the page.

13 Steps from Raw Materials

. . . Begins on page 52

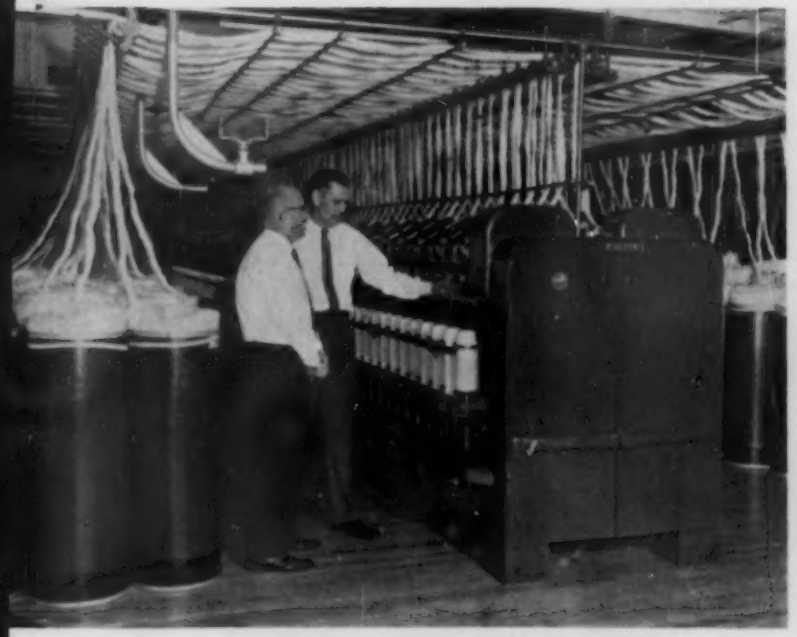
Making the Yarn at Candlewick



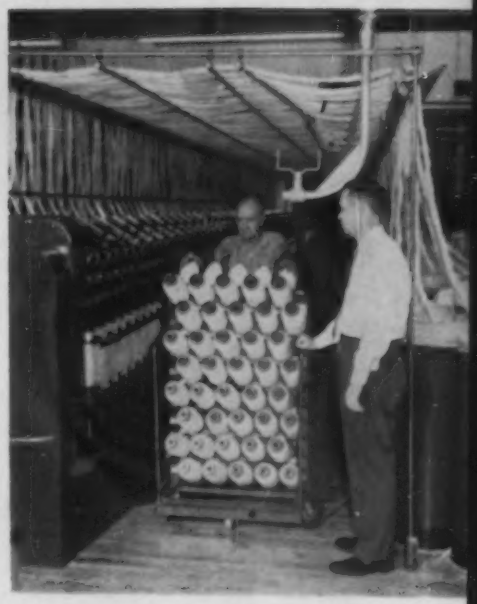
1. CARDING (with worsted cards) is first stage in producing Zefran fiber. Here Superintendent Jack Puckett and an assistant look over the operation.

2. BLENDING fiber takes place next. Here blended fiber comes from the finisher operation at Warner & Swasey pin drafters.

to Finished Product



3. SPINNING directly from roving is done here. These 4-lb. bobbins of 2s Zefran-nylon yarn are ready to be doffed.



4. DOFFING onto special trucks speeds the task of yarn production, makes for an easy transition between spinning, winding jobs.

5. REWINDING to larger cones is the last step in Candlewick's streamlined Zefran-blend yarn production.

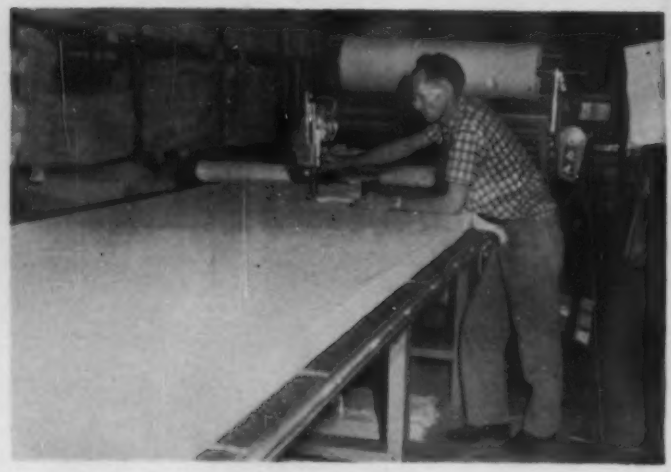
Now, to see the next 8 steps that transform raw materials to finished goods . . . *turn the page*

13 Steps from Raw Materials

. . . *Begins on page 52*

Tufting and Finishing at Regal

6. RECEIVING special blend yarn is first step that takes place at Regal. Special 2-lb. cones are most efficient size for Regal.

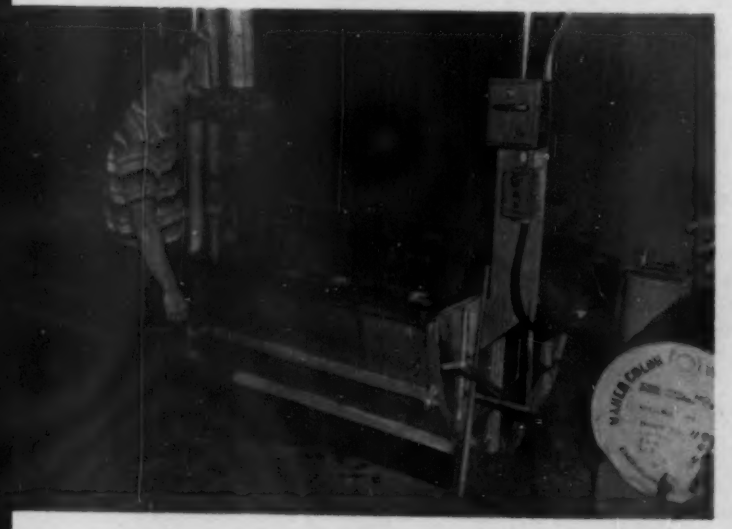


7. CUTTING duck-backing fabric is next step. Several layers are cut at one time on this table. Top piece is stenciled.

8. TUFTING goes on here. Machines can be creeled from the front because of special machine layout and creel arrangements.

9. INSPECTING job falls into two parts: (1) after rugs are tufted, and (2) after rugs have been finished.

to Finished Product



10. DYEING takes place in this conventional paddle-wheel machine. Job is a quick one, and is finished in an hour.

11. EXTRACTING excess water is done on special stainless-steel extractors.

12. DRYING and fluffing of tufted rugs is the job of two gas-fired tumbler dryers like this modern machine.

13. BACKING rugs with latex compound is the final link in the Candlewick-Regal chain. Infra-red heat cures latex quickly.

Mill Check-Up—Part 7

Checking Men and Machines at Spinning

It isn't enough to have all production, quality, and cost figures at your fingertips. You need the active cooperation of supervisors and operators, too.

PUT YOURSELF in the superintendent's shoes (if you don't already occupy those shoes). What's your job? Basically, it's this: producing a quality product, on schedule, at low cost. Your success is dependent on how you approach the numerous details of the job. That's why you must understand both machines and people.

And that's why you carry on a constant search for cause and effect —of anything and everything that interferes with the efficient discharge of your duties. Actually, you are searching for "effect" and then looking for "cause."

If you're on top of your job—have both technical know-how and the right kind of experience—you can easily pin-point the cause of any type of trouble that lowers quality, slows up your production, or puts a rocket under your costs.

Put yourself in the spinning room. As you walk along, you leaf through the papers on your clip-board. Your overseer is with you as you and he look over the spinning operation. At this point, perhaps you dispair of completely controlling the efficiency of the spinning room. You know that a multitude of identical machines are doing an identical job —that each of the machines can get out of adjustment and is a potential source of trouble.

One thing is certain: You can't check every spinning frame in the mill every day. But you want assurance nevertheless that the frames are all running correctly. The solution is obvious and simple to point out, but it's very difficult to achieve. The answer lies in full cooperation of every man in the room.

"My job," you say, "is to see that the overseers do their job right. The overseers' job is to see that the fixers and spinners do their job right."

THE "PEOPLE" PROBLEM

When you say "do the job right," you mean it's your responsibility to train these people to do the job right from a mechanical and performance standpoint and to instill in them the desire to do this. That's why you have three objectives in making your daily inspection.

Objective 1—Giving operating personnel the help necessary to understand the technical operation—and then leading them into a conscientious performance of their duties. As long as the people know what they are doing and want to do it right, you have no problem that can't be solved quickly and quite easily.

One purpose of your daily inspection tour through the mill is to instill in all the people reporting to you the desire to operate the mill efficiently and properly. You can do this better by example than by sermonizing—by showing a true interest in the machinery and the operation of the machinery and by passing on to them an attitude of watchfulness and care rather than just talking about it. If you assume a lackadaisical or overly casual attitude, you can be sure that the overseers will echo this feeling and that it will be passed on to the people under them. In just a short time, lack of attention to details will be demonstrated by a drop in quality and efficiency.

When you walk through the mill, for instance, check the cleanliness of the frames. Point out to the overseer and to the spinner any lap-ups, scavenger rolls not cleaned, accumulations of lint on the frames, or pneumatic cleaning orifices not properly set.

Objective 2—Evaluating the abilities of mill personnel. As you walk through the mill, make a point of talking to the fixers and the spinners, and of course to the overseers themselves. It's easy to determine the technical capability of the overseer and his understanding of the machinery. The same thing applies, in a more limited way, to the spinners and fixers. It's more difficult to evaluate their true interests in their jobs and their true desire to be careful and meticulous in maintaining equipment and in trying to improve efficiency. Nevertheless, it's the attitude of the people that will make or break the spinning room.

Objective 3—Checking and making sure that the mill is operated efficiently, both mechanically and humanly. Remember that you're responsible to top management for the operation, and you should know at first hand that the mill is running satisfactorily.

GATHERING DATA

A part of your approach is to check first with the overseer. You and the overseer sit down and talk for a while. Together you go over the various essential reports such as end-down tests, production efficiency, waste reports, and machine-stoppage reports. The overseer gives you much of the information needed to evaluate the condition of the room.

More important, however, the meeting provides an opening for personal discussion. During this period, the overseer can tell you of his problems and ask for any help that he

By A. L. LANDAU, Assistant General Manager, Replacement Parts Div., Saco-Lowell Shops, Greenville, S. C.

thinks should be given him. This session also gives you an opportunity to connect one department with another. For instance, if the ends-down tests are high, the overseer may claim that it's due to poor roving. You then go to the card-room overseer and check the roving together. This type of personal check clearly indicates your own interest and it tends to bring all of the overseers together in understanding.

Be sure to have regularly-scheduled overseers' meetings, at which you preside, for the purpose of discussing problems affecting all departments. Be careful not to let these discussions turn into a round-table of claims and counter-claims, of charges and counter-charges, with all the overseers trying to blame their difficulties on another department. If this occurs, then the meeting will be disastrous to mill morale; but if handled properly, meetings of this type are invaluable.

TO SAVE TIME, SPOT CHECK

After talking with the overseer, you then walk through the spinning room to make your own daily inspection. Try to check one frame in each section, and particularly try to inspect one frame making every number of yarn that's in production at the time. As you walk through the room, you already have a fairly good idea of the conditions that you will find because you have just read reports of the previous shift and you have been given data on ends down, production, efficiency, and waste control. This procedure saves a lot of time and also gives a clue as to what portion of the room is in the greatest trouble.

As you walk down the alley of the spinning room, look in the roving trucks to make sure that the roving is not being handled roughly. Rough handling of roving can be a source of real trouble. It should be stacked neatly in the trucks to prevent undue sloughing. The care shown in handling the roving, incidentally, is indicative of the attitude of the doffers and of the overseer in the card room.

In the spinning room, your daily inspection of the frames is quite superficial for those frames whose performance reports show a satisfactory rate. As you walk down the room, listen for any noises that would indicate that the head-end gearing is worn. It's a good idea to pause by a frame—particularly if it is stopped for doffing—open the head-end and inspect the gearing. This action also gives you an opportunity to see if the gearing is clean of impacted waste and if it is being lubricated properly.

When you reach a block of frames that you feel should be more closely checked, walk up and down the alley and look at the bobbins being built. Nice, even bobbins indicate that the frames have been running smoothly and continuously since the beginning of the doff.

CHECK FOR QUALITY

Generally if you find trouble that can't be traced to frame stoppage, then the builder motion must be checked out. It may be that the lifter rods are sticking or that there is a lag, back-lash, or binding between the builder motion, connecting rods, and components running to the ring rail. Bobbins that are not evenly built usually have a high rate of ends down, which results in low production.

Check for an even bobbin line. The bobbins should sit perfectly evenly on the spindles if completely filled bobbins are to be produced. Bobbins sitting high or overrunning before the end of the doff will slough off later.

Poor bobbin seating also is a pretty sure indication of worn bobbins or quills. The use of bobbins that are badly battered or worn is a real instance of poor economy. It's foolish to save small pennies by using old bobbins that lose big dollars in the form of increased waste and poor-quality yarn.

In walking down the length of the frame, many defects will be immediately obvious to the trained eye. Look for vibrating spindles that could be caused by worn bolsters or bearings. Check to see if the tapes are of just the right length. Loose tapes, you know, will flap. Tight tapes cause excessive wear of the spindle bearings. Either condition—tight tape or loose—will shorten tape life. The spindles are one of the major keys to successful spinning, and they merit close inspection regularly by the fixers and overseers.

CHECK BALLOONS

Next look at the balloon of the yarn as it is wound on the bobbin. The first check-point is to make sure that the thread guide is set in plumb directly over the top of the spindle. If the balloon is too large and is hitting against the separator, then it may be that the traveler is not correct. If the balloon is too tight, then it may be that the traveler is too heavy. A large balloon can cause frayed yarn and give it an undesirable fuzzy effect; on the other hand, a tight balloon can cause an excessive number of ends down—more than you can afford.

If ends down are high, the traveler should be checked for wear. It may be that the travelers are running too long. Burned travelers cause leaded rings. The position of the ring rail should be observed and if necessary aligned to a true horizontal position. A ring rail not truly horizontal will cause trouble, for the traveler will be continuously running either uphill or downhill and can never settle down to a smooth flight.

CHECK DRAFTING, CREELS

The next-to-last check point is in the drafting element. Lift up the clearer cover and look for worn cots. Cots that are worn cause uneven drafting and poor yarn. Cut cots tend to grab fibers and cause lap-ups. Incidentally, oil on a cot can be a prime source of excessive lap-ups because oil causes the fibers to stick to the top roll.

Another danger point, easily spotted and potentially serious, is the presence of bent steel rolls. The degree of the concentricity of the steel rolls of the drafting element varies with its position. The front roll should be concentric within at least 0.003 inches if top quality is to be maintained.

Roll settings should be checked only if the yarn is below standard. But wear of stirrups, weight levers, and similar parts should be noticed and corrected, especially if there is any bending of these parts.

As you leave the spinning room, notice the condition of the creels. The bobbin holders should not be sticking if an umbrella creel is used. Skewers should be sharp—and replaced if cracked.

Money—and Other Motives

Best way to solve the motivation problems—look inward. Size up your own motives, then apply what you learn to those who work for you.

By S. G. WILLIAMS, Management Consultant, New York City

HE WAS an expert from New York, leading a conference of mill supervisors in Augusta, Ga. Topic of discussion: What it is that makes people work—what they are after when they get up every morning and come into the mill to put in their full day. One of the supervisors, urged on a bit by a couple of the others, was insisting that there is just one reason why people work —"Money". "That's the only reason," he said.

The conference leader spoke up: "Tell you what, Jerry. I'll pay you exactly double what you're making now if you'll come to work for me. Will you do it?"

"*Double* my present pay? What kind of work would I have to do?"

Bingo! The meeting broke up in explosive gales of laughter. If Jerry had answered "Yes" unequivocally, he would have proved his point. But the minute he asked a question—any question—he was just as certainly proving himself wrong, showing that even for himself money was not the only motive.

MONEY, BUT. . . .

Most mill managers are familiar with the old saw: "Money isn't everything, but it's way ahead of whatever is in second place."

This goes without saying. No one is going to work for you unless he gets paid. But this motive is (1) taken care of to a considerable degree and (2) more or less out of the hands of the individual supervisor. So the real question that a conscientious supervisor has to ask himself goes something like this: "Is money the only inducement I can offer to get my people to work better for me, or do I have resources I can call on beyond the matter of pay?"

Take Jerry, for instance. What he was really saying was this:

"Money is mighty important to me, but I also am interested in the kind of work I do." In that same connection, he could well expand along such lines as these: "I like to work on a quality product. Something I can boast about to the fellows over a glass of beer. None of that cheesy stuff for me—why, I couldn't hold my head up!"

WHAT ABOUT MOTIVES?

Take a look at three important questions of motivation:

1. What are the kinds of needs that drive or motivate people?
2. How do we find out which needs are uppermost in the feelings of which employees?
3. What can we do about it after we do know?

Before we get into these three "working" questions we need to mull over a few of the basic truths about the phenomenon of motivation itself. These truths, like all truths, sound strangly familiar when we hear them. But however "self evident" they are, we forget them or, at least, we do not act the way we would have to act if we really believed them. So let's take a moment to review the three basic truths about motivation.

1. Everyone has needs and desires—And his needs and desires are what make him go or fail to go. Budd Schulberg's book of several years ago, *What Makes Sammy Run*, describes an over-riding ambition that lets no one or nothing get in its way. If a man is convinced that moving will satisfy one or more of his needs or desires, he moves. If he's not convinced, but sees some possibility, he moves, but not very fast. If he believes moving will not satisfy one or more of his needs or desires, he sits. He may even sit while you're paying him to move, because just paying him isn't quite enough to get the movement out of him.

2. Needs and desires are standard. They are universally similar. You have them, I have them, everyone who works for us has them—the same needs and desires, but with differences of degree and time. As an example, today a certain one of these motivations may be utterly vital to me, but tomorrow it may be something else that drives me. What pushes me today may be what pushes you tomorrow. The point is this: There is enough similarity between your own needs and desires and those of your employees—enough so that you can guess successfully about theirs more often than not, especially if you know even a little bit about them as human beings. Put another way, you are not likely ever to find in anyone else a motivation that you have not recognized—at least to some degree and at some time—in

yourself as you do your daily job.

3. Everyone wants job satisfaction. Because we spend so many of our waking hours on the day-by-day job, we would like to get satisfaction for all of our needs and desires out of our work situation. This desire of ours may not make sense, but it does make opportunity for you as the supervisor. You are not limited to ordinary work-place motivations. You can call on all human needs and desires as resources to get the job done better.

Now, with these facts in mind, we can proceed much more easily to the three aspects of motivating suggested above.

WHAT MAKES YOU GO?

It's as simple as that. You know others by knowing yourself. You have a built-in model. If everyone has the same drives, except for variations in timing and emphasis, you need only identify the motives you know you have.

Are you interested in status symbols? You may be that rare creature for whom status is not an important need, but still you have enough interest in such symbols to realize the existence of similar drives in others. And you're smart enough to know this is a terrifically important matter to many of the people whom you supervise.

When you have a red-hot idea to save money for the company, do you want to tell someone about it? You do? So do your subordinates, and usually you're the person they most want to tell. But how do you feel when you or your wonderful idea gets the fast brush-off? Your subordinates feel very much the same.

Perhaps the best move you could possibly make toward improving your own capacities as a first-class motivator would be to find a quiet corner where you could just sit for an hour or two and consider those things that make you want to work enthusiastically and energetically—and those things that make you feel like chucking the whole shebang.

Each motive you succeed in identifying should be followed in your mind by the reminder: "These satisfactions (or dissatisfactions) are important to each of my people, too."

. . . *Do you like to be kept informed,* and feel upset when you're left out of the communication picture?

. . . *What's your emotional response* when a superior gives you a real pat on the back? Do you like him to praise you where others are around to hear him do it?

. . . *Are you interested in knowing* there's a future for you in the company, that you have a chance to advance?

. . . *Do you like variety* and change of pace in your work?

. . . *Does it matter to you* whether or not you know how what you do fits into the whole operation, how it co-ordinates with what other people are doing?

. . . *Is security a factor* in your peace of mind?

. . . *What's your reaction to challenge?* Are you stimulated and excited when you're given a chance to try your hand at something new?

MAKE A TEST

Pick one of the motives you know applies to you. Now picture in your mind the first employee that occurs to you. Does that single motive apply to him? The odds are better than 99 to 1 that it does.

So let's go along to the second, and slightly more difficult assignment you face as a motivator, the job of figuring out what is uppermost in the needs, at any given time, of any one of your subordinates.

Generally, there are two bases for deciding which motivation button to push for a given individual at a particular time:

1. The overall atmosphere—Things are happening that are bound to affect everyone. Take this discussion between two foremen:

"This layoff's got everybody worried. We ought to figure out a way to let the men that aren't going to be hit know they're O.K."

"Yeah. Especially Ed Loomis. He's right on the edge—just enough seniority to stay. I'll want to talk with him fast, so he can calm down and get back to work."

2. Your knowledge of the individual—Often personal-ambitions, troubles, pressures, hopes, and, the personality make-ups of your subordinates have a crucial effect on motivation.

. . . "George, I know you're plenty concerned about getting your wife out of that hospital. But there's an interesting assignment coming up—something I know you'd like, and it carries a little higher pay rate. Maybe it would be a good idea if you took it on."

. . . "Doug, we've got a really sticky problem over in the carding room. How'd you like to see what you can come up with, using that lively mind of yours?"

Sit down with a list of your people. Look at each name and ask yourself, "What is most likely to make my men go?" If you don't get a clear answer for each person, your next step is cut out for you. Walk down the line. Stop at the work place of the doubtful man or woman and open up with a simple question like, "How's it going, Sue?" Then listen. Listen for needs and desires. If you let them talk for even a minute or two, you're practically certain to get leads in the direction of what will motivate them.

HOW TO USE THE CLUES

Most important is to be constantly cognizant of your motivator function. Always keep aware of the fact that in every decision you make, every act you perform, motives of all the people involved play a vital part. Your results can't help but be better if you take those motives into account.

When any change is to be made—a transfer, a new process, a new machine, new grouping, an additional duty or responsibility—don't ask merely who can do it best. Ask also who will be motivated most highly if he takes part.

Carry out each communication, in such a way that it takes motivational possibilities into account.

Whenever you talk with, to, or about an employee, let this thought be in your mind:

"What can I do or say to make him go?"

THE BLEACH THAT WOULDN'T STOP TURNING RED

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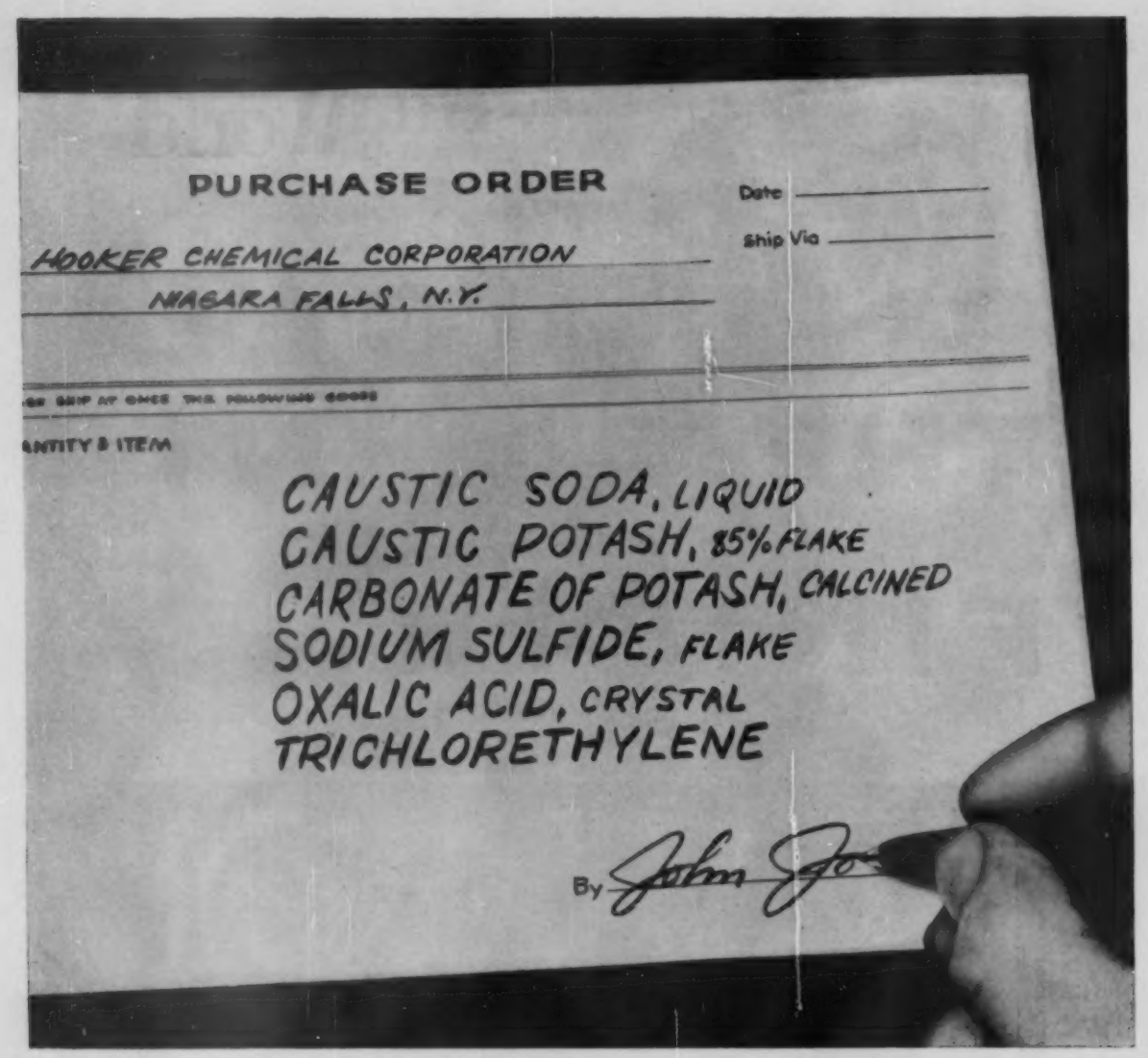

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Acid Alizarine Anthralan® Genalan® Sulphon® Supramine® Supranol®	ACID		■			
Palatine®	ACID METALIZED		■			
Naphthol Fast Color Bases	AZOIC	■	■		■	
Genacryl®	CATIONIC (Basic)		■	■		
Benzofix® Fastusol®	DIRECT					
Diaminogen® Diazo Oxydiaminogen® Zambesi®	DIRECT, DEVELOPED					
Celliton® Genacron®	DISPERSE	■	■	■	■	
Cellitazol®	DISPERSE, DEVELOPED	■	■		■	
Anthracene Chrome Chromogene® Chromoxane®	MORDANT ACID (Chrome)		■			
Supralan®	NEUTRAL METALIZED		■			
Indo Carbon® Katigen®	SULFUR					
Algol® Indanthrene®	VAT					
Algosol®	VAT ESTER (Soluble)		■			

To help you keep abreast of new dyeing proc
booklet, "The Dyeing of Synthetic Fibers." Fo
Representative nearest you.

†Company Trademarks: (1) Chemstrand Corporation;
bama), Inc.; (4) American Cyanamid Co.; (5) E. I. du Pon
Union Carbide Corporation; (7) Eastman Chemical Pro

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dy reference dye application chart

FIBERS†

	Arnel[2]	Corval[3]	Creslan[4]	Dacron 54[5]	Dacron 64[5]	Darvan[2]	Dynel[6]	Kodel[7]	Nylon	Orlon[5]	Topel[3]	Verel[7]	Vycron[8]	Zefran[9]
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tion; (2) Celanese Corporation of America; (3) Courtaulds (Ala-
u Pont de Nemours & Co.; (6) Union Carbide Chemicals Co., Div.,
l Products, Inc.; (8) Beaunit Mills, Inc.; (9) Dow Chemical Co.

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News of the Month in . . .

Textile Chemicals

Scouring and Bleaching Helps to Starve Mildew

Scoured and bleached fabrics rebuff mildew better than gray goods, U. S. Dept. of Agriculture scientists have discovered.

Removal of natural and added nutrients (such as sizings), while no substitute for mildewproofing treatments, does increase resistance to mildew very appreciably, the researchers say.

In the case of duck fabrics, scoured duck retained a breaking strength of 56 pounds after 12 months exposure, compared to 20 pounds for gray duck similarly exposed.

These and other examples of the value of scouring and bleaching for vinyl-coated fabrics are available free of cost from Southern Regional Research & Utilization Dept., New Orleans, La. Ask for *Desizing, Scouring and Bleaching Improves Cotton for Outdoor Use,* by Wilson A. Reeves, Helen M. Robinson, Ralph J. Brysson, and W. Norbert Berard.

Radiation Cuts Pilling

Wool that has been impregnated with a 16% solution of polyethylene glycol of 20,000 molecular weight and then exposed to an electron beam exhibits much higher fiber cohesion, and therefore pills less.

The discovery, made by Du Pont, has also been applied to acetate fibers in a modification that uses methoxydeca - ethyleneoxymethacrylate as the saturating liquor. There is a marked lowering of electrical resistance in both wool and acetate treated in this way. Theory behind this effect is that the radiation causes the glycol or the methacrylate to combine additively on the fiber surfaces to give permanent modification of their properties.

New Help for Dyeing—Ultrasonics

The application of ultrasonic principles to textile-dyeing processes may be one step nearer, according to a report from B. M. Harrison Electrosonics, Inc., Newton Highlands, Mass.

New and improved ultrasonic methods and equipment are described in a patent application filed by Mrs. E. R. Fleming, Harrison Director of Research.

The theory behind ultrasonics is that the high-pitched sound waves drive dye into the hydrophobic fibers quickly and evenly when sound generation occurs in the dyebath. Degassing and positive pressure alternate in rapid succession at the fiber-liquid interface. There is no need for very high temperature or pressure in the ultrasonic method of dyeing.

A successful application of ultrasonics to dyeing would result in great savings in time, particularly in the production of dark shades on polyester and polyamide fibers.

Combined Processes for Wool Wash-and-Wear

Wool slacks and skirts are permanently creased or pleated by a new chemical treatment developed by U. S. Dept. of Agriculture scientists. The creases stay through long wear and exposure to rain and high humidity. If the fabric is suitably shrinkproofed, the creases remain after machine washing.

The process was devised at the Wool and Mohair Laboratory of USDA's Agricultural Research Service in Albany, Calif., by chemists N. H. Koenig, W. L. Wasley, and C. E. Pardo. They found that dilute solutions of ethanolamine will put long-lasting creases in wool.

Dr. Koenig and his co-workers, in their tests, used a 0.5 to 2.0% solution of ethanolamine in water with a very small amount of detergent to facilitate wetting. The solution can be applied either by spraying or dipping, after which the damp fabric is steam-pressed. In a typical experiment with lightweight suiting, creases were set in one minute at about 280 F. in a tailor's press.

The treatment is applicable to fabrics that have been shrinkproofed by epoxy-polyamide resins, a method developed earlier by the Wool and Mohair Laboratory. Fabrics that have received both treatments are washable in machines without shrinking and without loss of creases.

Tests on commercial equipment have given promising results. The scientists have applied for a public-service patent, which would permit commercial use on a royalty-free basis.

Purifying Salt Water

A process that forms hydrocarbon hydrate crystals above the freezing point of water may be the answer to low-cost conversion of saline waters to fresh water.

Now in the laboratory stage at Koppers Co., Inc., the new conception will be further explored for practical large-scale application.

Salt water is treated with a hydrocarbon additive that forms the hydrate, which crystallizes from the mother liquor. The crystals are broken up by slight heating and release fresh water.

Repellents In A Nutshell

Cotton processors interested in water-repellent treatment can benefit by a comprehensive report on research in this field issued by the U. S. Dept. of Agriculture.

Bulletin ARS 72-9, Improvement

of Water-Resistant Cotton Fabrics, is available from Southern Utilization Research and Development Div., P. O. Box 19687, New Orleans, La.

Topics discussed in the publication include swelling capacities of various types of cotton fiber, effects of yarn and fabric structure and of finishing, mercerizing, and various other treatments. Five papers cover a range of subjects pertaining to water-resistant fabrics are included.

Silica Combinations Improve Triacetate

Durable water repellency, better resistance to creasing and abrasion, higher tensile strength, and better sewability are all claimed for triacetate fabrics treated by a method developed by Celanese Corp. of America.

The trick is done by padding the goods in an aqueous dispersion of equal parts of a silicone and colloidal silica at a concentration that will deposit ½ to 1% of the combined silica solids on the goods.

The fabric is then dried and heat treated at 160 C. for 4 to 8 minutes. The silicones are readily available under brand names such as CeCe-Tex 102, 104, and 108; Repel-O-Tex P-30; Hydropruf SP; etc., while the colloidal silicas are marketed as Syton W-20, Ludox, and Dow Corning Silica.

The silica combination can be applied at any stage of finishing; and when heatsetting is required for other purposes, the curing and heatsetting can be done simultaneously.

Spark for New Fibers

Fibers and resins of the polyester and polyamide types based on pimelic acid are now possible, according to American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y. The acid is a seven-carbon saturated dibasic acid that has the higher water solubility and lower melting point characteristic of dibasic acids with odd numbers of carbon atoms. **The product will react to form amides that can be easily dehydrated to nitriles.** Esters are also easily formed by chemical reactions typical for members of the dibasic acid series.

Wash-and-Wear Without Resins

Latex and cellulose reactants are used in a new process to produce a wash-and-wear finish that does not retain chlorine. Durability to laundering is good, and excellent dimensional stability of treated fabrics is another benefit of the new process.

To get these results, you first pad the goods in a latex dispersion based on 5% of a natural rubber dispersion of 40% concentration. The rubber is dried in the goods and they are again padded in a liquor containing:

Pyridinium salt of 1, 2 dichloromethyl ether	6%
Sodium acetate	2%

Drying is followed by curing at 145 C. for 10 minutes, and the goods are afterwashed to remove uncombined materials. Then they are given a final drying.

Chloromethyl compounds unite chemically with cellulose to give stable cellulose-ether derivatives. The sodium acetate acts as a buffer against the HC1 formed in the final curing operation. Synthetic latices based on 15% butadiene and 85% acrylonitrile, or 75% butadiene and 25% styrene, are also suitable for the initial padding. The latex must be applied first to get the required results.

Glycine Derivative Gives Better Black

If para-aminodiphenylamine is reacted with chloroacetic acid to give paraphenylamino-phenylglycine, the oxidation black produced from this base is improved over that made from para-aminodiphenyl-amine.

French researchers claim that the glycine form oxidizes more readily in neutral steam but makes a more stable padding liquor or print paste than does the parent compound.

The new compound will also produce good blacks on man-made as well as cellulosic fibers and with less loss of tensile strength.

A typical print paste for cotton fabrics is:

Para - phenylaminophenylglycine 40 parts; sodium chlorate 30 parts; ammonium oxalate 30 parts; 1% ammonium vanadate solution 20 parts; 20% ammonia solution 10 parts; thiodiglycol 50 parts; and starch-gum thickener 820 parts.

The printed goods are steamed at 100 C. for 8 minutes and soaped in the usual way to produce an excellent black.

Silicones Develop Pile

Tricot fabrics based on 35% Orlon and 65% Dynel can be napped to give a high-pile surface if treated according to a process developed by Midland Silicones Ltd.

A typical treatment is to saturate the goods in a 2% emulsion of a 60-40 mixture of methylhydrogen siloxane and dimethylsiloxane. A catalyst such as a mixture of zinc 2-ethyl hexoate and dibutyl tin diacetate is added to speed curing. The goods are dried at under 200° F., napped in the usual manner, passed through an electrostatic field to raise the nap, and then napped again and sheared. Finally the goods are heated above 250° F. to fix the luxurious pile.

Improved Wool Dyeing

Level dyeings on wool can be made with a broad range of dyes if you add quaternary ammonium compounds to the dyebath.

According to British Patent 838,-312 to Imperial Chemical Industries, cetyl trimethylammonium bromide, cetyl pyridinium bromide, tetradecyl pyridinium bromide, and stearamidomethyl pyridinum chloride are all useful levelling agents. About 2% of such compounds on the weight of the fiber is sufficient.

Dyes that contain the s-triazinyl-amino group and two sulfonic acid groups are particularly liable to dye unlevelly unless a cationic substance of the type described is present. The usual assistants necessary to exhaust the bath are also used in this dyeing method.

Right Surfactant Stabilizes Dyebaths

When you dye polyester-fiber fabrics with disperse dyes, better bath stability at high temperatures for prolonged periods may depend both on the choice of surfactant and assistants.

Farbewoerke Hoechst A. G. finds that a surface-active ester of phosphoric acid aids considerably in maintaining a good dispersion under these conditions.

An ester derived from the interaction of orthophosphoric acid with mono- or polyhydric alcohols that carry seven or more carbon atoms in the hydrocarbon radical has been found satisfactory. The phosphorous atom may be joined to the hydrocarbon radical through an oxygen bond, but a better product can be made when the join is through a glycol or polyglycol group.

Typical formulations, described in British Patent 828,924, suggests the condensation of mole of dedecyl alcohol with four moles of ethylene oxide, or one mole of oleyl alcohol with four moles of ethylene oxide, or one mole of dedecyl alcohol with four moles of glycol. The usual carriers are still needed with assistants of this type.

Resisting Static Buildup in Fibers

Polyester and polyamide fibers resist static buildup when they are treated by a process developed in Germany by Farbewoerke Hoechst.

Such **fabrics are saturated in a copolymer made from equimolar portions of moleic anhydride and styrene, together with ammonium chloride and polyethylene glycol** (mol. wt. 2,000 to 8,000).

After impregnation, the goods are dried and cured at 120 C. for 15 minutes. During this time, ammonia is liberated with the formation of the acid form of the copolymer, which then enters into an esterifying reaction with the polyethylene glycol hydroxyl groups.

The goods can be later treated with softeners if the antistatic finish leaves a too-harsh hand.

Desize and Bleach In One Liquor

Cotton fabrics can be desized and bleached with sodium chlorite in what is virtually a one-step process developed by Kalle & Co.

Key to the process is the use of an acidifying agent that is dormant at 40 to 60 C. but goes to work to activate the sodium chlorite when the bath temperature rises.

In a typical routine, starch-sized goods are saturated with a solution that contains an amylolytic desizing agent, a wetting agent, sodium chlorite, and ammonium sulfate.

At 40 C., the desizing action takes place. After a suitable period, the liquor is heated to 80 to 100 C., at which point the ammonium sulfate breaks down and activates the sodium chlorite. The process appears to be suitable for jig-processing of small lots.

Precoating Boosts Bond Strength

The bond strength between synthetic latices and polyester fiber can be increased up to 400% by a precoating recently announced.

The precoating compound is based on polyisocyanates such as 4:4-di-isocyanato diphenyl methane or 4:4:4-tri-isocyanato triphenyl methane.

Polyester fibers that have been precoated with a 1% organic-solvent solution of the isocyanates bond tenaciously to the following coat, which is commonly based on an aqueous solution of butadiene-vinyl pyridine latex combined with an alkaline condensate of formaldehyde and resorcinol.

Cleaning Up Wool Waste

Acetate or viscose content of reused woolens can be removed by a German process recently patented in England. (Full details appear in British Patent No. 835,634).

Silicon tetrachloride mixed with dioxane is added to trichloroethylene to give a 3 or 4% solution of the silicon product. Wool is treated for 30 minutes at 25 C. in the solution and then is extracted and dried at 70 to 100 C.

Did You Know . . .

. . . that the demand for water for industrial purposes will increase 50% in the next 10 years? John P. Baum, vice president of Woolen & Worsted Div., J. P. Stevens & Co., Inc., recently told members of the Georgia Chapter, Soil Conservation Society of America, that today's water consumption of 1.5 billion gallons per day should reach 2 to 2.5 billions by 1970.

Textile manufacturing requires over ½-million gallons per year per employee, Mr. Brown said—about one third the average consumption of all industries in this country.

■

. . . that glass fiber can be coated with metal at high speed? The trick is done by drawing the molten fiber, while still hot, through a flame of burning gaseous metal carbonyl. U. S. Patent 2,907,626 gives more details.

■

. . . that polyester fibers undergo permanent changes in fiber structure when they are treated with carriers? Spectrophotometric studies show that carriers loosen up the fiber and make it more accessible to dyes. Pretreatment with carriers is sufficient to make the fiber dye-receptive, but if the carrier is used in too-high concentration in the presence of the dye, an impermeable skin may be formed that resists dye penetration. A complete report is available in Melliand Textileberichte 41, No. 2, pp. 195-199.

■

. . . that Freon TF is just as effective and safer than carbon tetrachloride when it is used for Soxhlet extractions? Biggest advantage is that Freon TF is relatively nontoxic compared to carbon tetrachloride.

■

. . . that you can distinguish acetate from triacetate fiber by a simple dye test? Try this:

Dye a sample with 0.2% Basic Blue No. 1—C.I. No. 42025 and 0.5% acetic acid at the boil for 2 to 5 mins. Acetate fiber will dye a bright turquoise blue—triacetate fiber will be stained a very light blue. (American Cyanamid Co. Dyelines)

What's New In Dyes and Chemicals

No Retarders for These Five Dyes

Five new basic dyes developed especially for dyeing acrylic fibers have been marketed by American Cyanamid Co., Dyes Dept.

The series, known as Calcozine Acrylic Dyes, includes **Calcozine Acrylic Yellow 2R, Calcozine Acrylic Red 3G, Calcozine Acrylic Violet 3R, Calcozine Acrylic Yellow G,** and **Calcozine Acrylic Blue G.** Another member, **Calcozine Acrylic Orange 3R,** will be available soon.

The important feature of the series is that these dyes have controlled affinity for the fiber and do not require retarders to prevent the uneven, rapid strike that is characteristic of many basic colors when they are applied to acrylics.

Only common salt and acetic acid is necessary to aid exhaustion of the dyes. Shorter dyeing cycles and elimination of the cost of retarders are welcome features.

Fastness properties are generally excellent, and the dyes are strippable in a bath of common salt at the boil. Dyeings are solid clear through the fiber and build up to heavy shades is good. The colors have the brilliance that is important from a fashion standpoint.

Orlon 42, Acrilan 16, and Verel are dyed with the Calcozine by simple salt-and-acetic acid procedures; Creslan 58, Dacron 64, and Acrilan 3400 can be dyed with suitable assistants or pretreatment. **(Circle D-1 on Reader-Service Card)**

Dyeing Assistants

Algepon 230 . . . is specifically designed to act as a retarder in the dyeing of 100% Orlon goods with cationic dyes, particularly in light and pastel shades. Uniform and level dyeings are produced with the assistant because of its continuous retarding effect.

Algepon 281 . . . is recommended for dyeing nylon with acid dyes. The product is highly effective in removing any barré effects. Supplied as a stable liquid, the assistant is easily dispersed in water. Arkansas Co. **(Circle D-2 on Reader-Service Card)**

Reactive Dyes

Reactone . . . brands a series of colors that can be used for dyeing or printing. Application is possible by continuous or semicontinuous processes. The range of colors has good solubility, stability, soaps off rapidly, and does not tail off in dyeing.

Dyes now available include: **Reactone Brilliant Yellow 4GL 140%, Reactone Orange G 125%, Reactone Scarlet GL, Reactone Brilliant Red BGL, Reactone Red 2B 170%, Reactone Violet BL, Reactone Blue RLD, Reactone Blue 2GLD, Reactone Turquoise Blue FGL 160%, Reactone Navy Blue GRL, Reactone Grey GL,** and **Reactone Black RL.** Geigy Chemical Corp. **(Circle D-3 on Reader-Service Card)**

Direct Dye

Sirius Supra Yellow GRLL . . . is a level-dyeing color that has excellent lightfastness and good solubility. The dye works well with Sirius Supra Blue F3GL-CF in the production of green shades that exhibit outstanding lightfastness. Verona Dyestuffs. **(Circle D-4 on Reader-Service Card)**

Nonyellowing Resin

Dextraset . . . is a resin that is based on a reaction involving urea, formaldehyde, and methyl alcohol. Unlike early UF resins, the product will not yellow when chlorine-bleached goods to which it is applied are ironed. Neither will the heat of ironing alone cause any discoloration. Repeated launderings with chlorine do not produce any tendency to yellow, according to the manufacturers. Dexter Chemical Corp. **(Circle D-5 on Reader-Service Card)**

Cationic Softener

Onyxsan FW-25% . . . disperses in tap water and so does not require boiling or cooking with open steam.

The product is a stable white paste that resists discoloration and is particularly suited to acid-fulling operations or as an exhaust-type softener for long-bath applications. The lubricating qualities of the softener are outstanding. Onyx Chemical Corp. **(Circle D-6 on Reader-Service Card)**

Nonionic Softener

Nopcotex NP-25 . . . is particularly recommended as an aid to napping on cotton and man-made-fiber fabrics. As a pure finish, it has excellent resistance to yellowing, and also functions as a lubricant in cutting and sewing operations. Nopco Chemical Co. **(Circle D-7 on Reader-Service Card)**

Self-Crosslinking Resin

Rhoplex HA-12 . . . is an acrylic resin dispersion that crosslinks readily in the presence of a catalyst. Cures can be effected at low to medium temperatures to produce films somewhat firmer than those exhibited by Rhoplex HA-8.

The product can be sprayed or applied by saturation techniques and is recommended for nonwoven fabric backing and as a pigment binder. Rohm & Hass. **(Circle D-8 on Reader-Service Card)**

Softener

Softener A . . . is adaptable to use on any fiber or fabric and supplies fullness and body to piece goods, stock, or yarn.

Resistance to yellowing is good, and the softener is compatible with most other finishing agents. It does not affect lightfastness of dyed goods and provides lubricity in sewing-room operations. W. F. Fancourt Co. **(Circle D-9 on Reader-Service Card)**

Premetallized Dye

Lanamid Violet 2BL . . . is a lightfast, washfast dye of good solubility that is suitable for dyeing tippy wool and works well at low temperatures. Allied Chemical Corp., National Aniline Div. **(Circle D-10 on Reader-Service Card)**

Optical Brightener

Leucophor A . . . is particularly useful with resin-finishing baths, where its chemical characteristics overcome acid conditions to produce brilliant whitening effects. Sandoz, Inc. **(Circle D-11 on Reader-Service Card)**

Geigy Tinolite Pigment Printing Colors

brilliancy of shade
prints on any fiber
light fastness
fast to dry cleaning

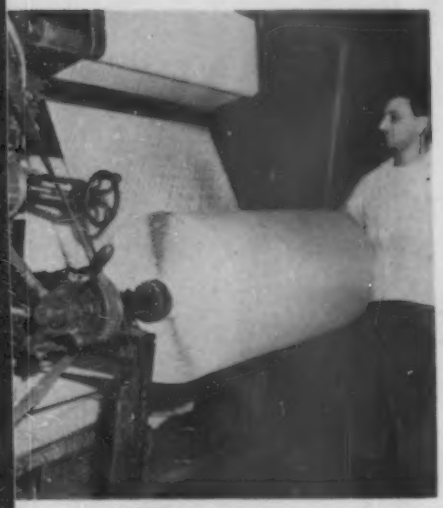
Geigy Tinolite Discharge Printing

no haloing
economy
ease of application
sharpness of mark

Geigy Tinolite LC® System

high degree of wash fastness
minimum crocking
fastness without
high temperature curing

PRINTER checks fit on pattern being printed on Arnel tricot.



PAPER separates layers of printed fabric and prevents steaming markoffs.

Roller-printing of tricot goods is tricky business. That's why this plant has found it pays to stick to what you know—concentrate on your strength.

How to Make a

SPECIALIZATION in one field can spell success—if you stay with it long enough. That's the story of Fabien Textile Printing Co., Inc.

As far back as 1939, when the plant was started in Lodi, N. J., Fabien printed the acetate tricots then available. As new fibers developed, Fabien experimented with them and developed methods to print and finish them.

Today Fabien's production is split about 50-50 between Arnel and nylon tricots for women's wear. The plant has four multicolor roller printing machines and four 85-yd. tables. The tables are used mainly for sampling purposes today. About 98% of the plant's production comes from the roller printers.

GOODS PREPARED OUTSIDE

Fabien receives its goods already bleached, split, and ready to be made up into print orders. Preparation is done in open Burlington machines that leave the goods perfectly flat and free of crease marks.

The printing operation follows conventional procedure except that a good deal of care is taken to see that let-off tension is not too great, and the goods are wound up in paper in preparation for the steaming operation to come.

Nylon tricots are printed mainly with acid colors. Arnel prints are produced with disperse dyes. Print pastes are based largely on Keltex gums.

READIED FOR STEAMER

The rolls of printed goods are next taken to a hanking machine, where each piece is wound off along with its paper separator into hanks of about 80 yards each. Hanks are placed on poles, which are racked up on a carriage that can be rolled into the cottage steamer.

Arnel prints are steamed for 1¼ hours at 12 to 15 psi. to develop the full shade of the colors.

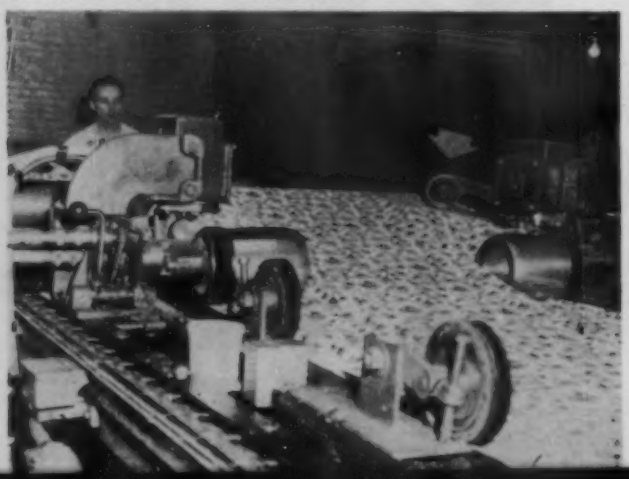
Nylon prints are steamed for 1 hour at 6 to 8 psi.

SOAPED AND FINISHED

Fabien uses a series of three double-reel compartmented rope soapers to wash out print gum and loose color. The principal detergent is Igepon plus a small amount of mild alkali. Igepon is made up in solu-

ROPE SOAPER performs dual function: Cleans up the goods, applies finish in last section.

ENTERING END of pin tenter handles tricot fabrics. Belts (arrow) remove last trace of selvage curl.



Specialty Pay Off

tion in a 50-gal. drum and is fed in continuously. Soaping is carried out at 120 F. The second section of the soaper is used for rinsing. At the delivery end of the third section, a cationic finish is fed in continuously in the same way as the Igepon is supplied.

Two centrifugal extractors are mounted near the soaper. They are used to remove excess water from the goods. After extraction, the goods are opened by hand over a reel and are ready for final framing.

SET BY HEAT

Fabien's primary finishing range is a pin tenter. The installation is equipped with a Dalglish opener and two gas-fired Proctor & Schwartz heating chambers.

The first heating section is used primarily to remove excess moisture. The second section is used to heat-set the goods so that they will be dimensionally stable.

Arnel fabrics are heatset at 360 to 370 F. Nylons are processed at 360 F. Operating speed is about 45 yards per minute, and travel distance in the heatsetting section is 18 feet.

The edges of nylon tricots are gummed with a polyvinyl-acetate solution by serrated wheels that are mounted on the frame right next to the selvages. The wheels dip in a small trough of polyvinyl-acetate solution. This way, they transfer a thin layer of PVA to the underside of the goods.

At the delivery end, circular knives trim off the pinned portions of the selvages, which are rolled up and sold.

Arnel fabrics do not need gumming. They come directly from the heatsetting operation ready for final inspection and rolling into single-piece packages.

PLANT KEPT BUSY

Talking with Louis Falatieu, president of Fabien, you get a good insight into the reasons for the success of the operation.

You get the impression that management is interested first in doing a good job—second, in putting through a great deal of cloth.

For example, the print machines run at 15 to 20 yards per minute—a rate that would drive a woven-goods printer mad. But a speed-up on knitted goods brings grief in assorted forms. You get distortion as tensions are increased, and keeping patterns in fit is more difficult. And the advantage of higher speed in the short runs in each color combination is quickly lost in higher seconds. Fabien operates with about 2% of seconds—an excellent argument for slower printing.

At that, the plant puts through about 150,000 yards of goods in a five-day two-shift week.

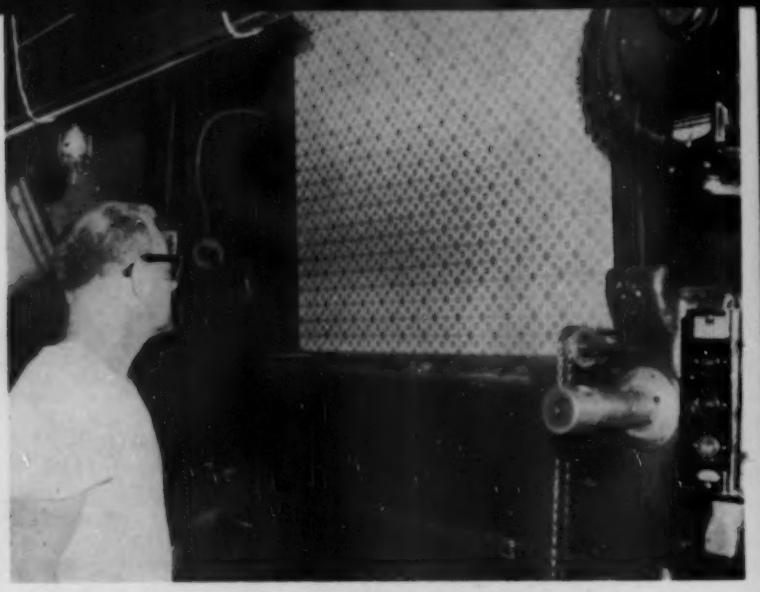
"We've been running steadily on this basis for the last five years," said Mr. Falatieu. "We used to have several competitors, but one by one they've given up tricot printing. And gradually we've become almost a vertical operation in our relations with a tricot supplier, the dyehouse that prepares the goods, and a few converters. Everyone in this group knows what he wants and what we can do for him, and we're familiar enough with the lines to know exactly how each one of them should be handled."

Net result of technical know-how plus good liaison with a small group of suppliers and converters: a going concern with few worries for the future.

REVOLVING KNIVES trim selvages at delivery end of tenter. Trimmings are sold to novelty manufacturers.

OPEN STEAMING FRAME evens up width at final inspection station. This operation separates pieces.

What You Should Know About Roller Printing—Part 2



PATTERN FIT and imperfections are checked by printer.

Here's a Fast Refresher

Chances are you've forgotten a good deal about the major parts of printing machines—purposes of lapping, print blankets, and backgrays. Here's what you should know.

SAVVY a manager as you are, the ABC's of roller printing may have slipped back a bit in your mind. May have become fuzzy with passing months and years.

For example, can you list the major parts of a roller-printing machine? Describe how the machine is driven, what lapping does, how to fit the pattern on the machine? Chances are you can't.

Look at the machine itself. It's relatively simple, but ruggedly built. Basically, it consists of two heavy cast-iron frames that support a steel cylinder. Cast into the side frames are projections called nips that carry the printing rollers. Machined guides on top and bottom of the nips receive the headstock of the print-roll mandrel and eliminate any end play that would cause poor registration of patterns.

What else? Here's a quick mechanical run-down:

• **Print machines** are built to carry from one to 16 rollers. Frames are equipped so that there's a pair of nips for each roller.

• **Print rollers** and main cylinder are adjustable. You can adjust them for various sizes of print rollers, lapping thickness, and other variable factors.

• **Cylinder itself** is usually ground level. But sometimes it has a slight crown.

• **Split brass bearings** in nips hold print rollers on mandrels.

• **Fabric presses** up against the rollers with the aid of a screw mounted in the nip that exerts pressure against the roll bearing. (Many printers prefer the old brass bearings, which have less play in them and therefore produce better pattern registration.)

Now for a closer look at the machine and its function—read on.

By L. H. FERGUSON
Superintendent of Printing
Wade Mfg. Co., Wadesboro, N. C.

WHAT MAKES IT RUN

Most print machines are driven by electric motors, either d.c. or a.c. Gearing actuates a star gear that is mounted outside the main frame of the printing machine. The star gear engages the fit gears, which are fastened to the mandrels that carry the print rollers. The fit gears carry a built-in worm-and-gear mounting that provides for fine adjustment of pattern fit.

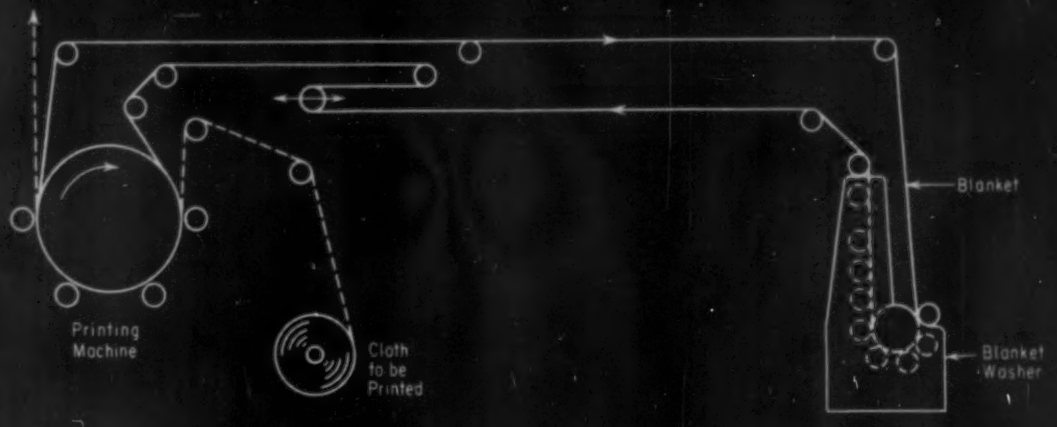
More complicated drives are in use but they are more expensive to maintain and sometimes increase registration problems.

WHAT THE LAPPING DOES

The steel cylinder is padded with a durable, resilient fabric called lapping. The lapping may have a linen or mercerized cotton warp and a wool filling, or the filling may be made of a blend of wool, rayon, and nylon.

The primary job the lapping does is to form a cushion between the print roller and the cylinder. The cushion must be resilient so that as the goods to be printed pass under the engraved roller the goods will press down into the engravings and pick up the color contained there.

Lapping is usually wound on the



TYPICAL SET-UP for a modern roller-printing machine with wash-blanket looks like this.

on Printing Machines

cylinder in several lengths rather than in one piece. A rough guide is to use one length of lapping for each nip in the machine. But some printers prefer fewer ends, or even one continuous piece.

Thickness of lapping will vary from ⅝ inch to 1 inch. Where several pieces are used to complete the lap, they are spaced equally around the cylinder. Why use several pieces of lapping rather than one continuous piece? To reduce the chances of wrinkles as the lapping is run in and packs down during its life.

New lapping is usually run in for a two-hour period. Printers use only one driven print roller to turn the lapped cylinder, and one undriven roller on the first nip, with light pressure on rollers.

As the machine is run, the lapping expands and lengthens. The single driving roll, preceded by the undriven roll, smooths out the lapping continuously as it passes under the print blanket. About 100 yards of plain fine lapping is needed to cushion the cylinder of a six- or eight-color machine.

WHAT THE BLANKET DOES

The print blanket runs between the lapping and the goods that are to be printed. The blanket is endless. It's made of several plies of fabric vulcanized together with natural rubber.

The face of the blanket is usually made of a synthetic latex that is resistant to solvents.

The blanket should be about 5 inches wider than the lapping so that its edges will fall free of the ends of the printing rollers. Otherwise, the blanket can carry color from one roller to the next and thus cause contamination of one color by that preceding it in the pattern.

Pattern width and the width of the fabric determine blanket width. All such factors should be in good balance. A blanket will track better if it is wider than the lapping. But if it's too wide, it will become damaged or it will interfere with the action of the doctor blade weights.

Short blankets are preferred for work that must register very closely. A long blanket will flop around between carrier rollers and cause poor pattern registration.

Blankets only 8 yards long may be used on 6-color machines for shirting prints. A backgray is usually used with such short ones.

Wash blankets, too—Washable blankets are used today for practically all printing, other than shirtings, and may be embossed or smooth faced.

Embossed wash blankets have been found to give somewhat better results than washable smooth blankets because they retain struck-through color better and reduce slipping or crawling of the cloth.

The washable print blanket is continually being washed and dried while the printing machine is in operation. The blanket is supported by 6-in. guide rolls and is led onto a large steel roll.

Three driven scrub brushes and a squeeze roll are mounted around the blanket-carrying roll. The first brush is usually made of stainless steel and is set so that its bristles barely reach into the embossing on the blanket. This roll is driven against the direction of the blanket.

The next two scrub brushes have nylon bristles and are set so that they bear heavily on the blanket and remove the color that has been loosened by the stainless steel bristles of the first brush. The nylon brushes are driven against the direction of blanket and travel at 1,200 rpm. by electric motors.

Warm water at 80 to 100 psi. is sprayed against the bristles of the first nylon brush, and water is also sprayed ahead of or into the stainless-steel bristles of the first brush.

After the blanket passes under the third scrub brush, excess water is removed in the nip between blanket and squeeze roller.

Two more motor-driven nylon

brushes then knock off more water, and the blanket is led through the talc compartment of the washer. Talc is sifted onto a nylon brush that distributes talc evenly over the blanket surface. Then another brush removes the excess talc as the blanket passes out of the washer on its way back to the print machine.

Talc is not used by some printers because they claim it gets into color pans, builds up on doctor blades, and causes miscleans or streaks.

Various means are used to get rid of all traces of water before the blanket gets back to the machine. Some printers force hot air into the powder compartment. Others lap the blanket-carrier rolls that touch the blanket face.

The back of the blanket must be free of water also, or the lapping will get wet and pack down. Air jets blow off excess moisture here.

Various safety devices are wired into the brush motors so that they will not rotate against the blanket unless it is running. An adjustable roller keeps the blanket taut. Tension should be let off a blanket that is to be shut down for any length of time, particularly after a long run during which it expands as a result of frictional heat. A tight, hot blanket may rupture if it cools down under tension.

USING BACKGRAYS

For some purposes, printers use a back gray between the goods to be printed and the wash blanket.

Backgrays have some advantages over straight printing on a wash blanket. A deeper engraving may be used with less danger of color flushing back or of color washing off on selvages. Heavier pressure or set can be used between print roller and goods with less danger of flushing. The backgray also help get better pattern registration because it helps keep cloth from crawling between print rollers. But the extra expense of backgrays may mean the difference between profits and loss, and may cancel out the advantages. Even so, some effects can be obtained on a backgray that you can't get on a wash blanket.

To get the most out of backgrays, some plants today use up to 500 yards of backgray that is continuously used, washed, dried, and returned to service. This method produces better results than the older method in which backgrays were used, dried, and reused until they were saturated with color and no longer absorbent. At this point, they were rope-soaped, dried, and put back in service.

The continuous washing process can be done in an open soaper or in an attachment to the blanket washer. In either case, printing results are better than when backgrays are run off a roll and reused several times before washing.

It is best to leave a small amount of moisture in the backgray to aid in color penetration and registration. Bone-dry backgrays are to be avoided if possible.

SETTING UP THE MACHINE

The print rollers are first forced onto a steel mandrel by hydraulic pressure. (A chrome-vanadium steel or Maxcel steel mandrel will give top resilience.)

A resilient steel is necessary to overcome the flexing action brought about by pressure on the ends of the mandrels and also when lapping is placed so as to give a crown to the cylinder.

This crown is built up by running on layers of broadcloth, called backs, in such a way as to make the center area of the lapping thicker than the ends.

The packed lapping is used to print shirtings. It helps to produce an even print from selvage to selvage by overcoming the usual tendency of the mandrel to bow out at the center.

Very fine patterns can be printed in this way, but the strain on mandrels is great, and unsuitable steels crystallize and break.

One the print roller is forced onto the mandrel, it is locked in position by a key that is seated against a collar. The collar is mounted between the mandrel bearing and a shoulder on the mandrel. The print roller is thus secured in every direction of movement. Old rollers may require shims to make up slight differences between the roller bore and the mandrel.

FITTING THE PATTERN

The first print roller is hoisted into the machine, and the fit gear on the end of the mandrel is meshed with the star gear of the machine. The roller is then put in contact with the backgray.

A small dab of color, or chalk, is put on the pitch mark of the roller, and the machine is run until the impression from the pitch mark is lined up with the position of the second roller.

The second roller is then put in place and its pitch mark is lined up with the impression made by the first roller.

This procedure is followed for all the rollers in a pattern.

Doctor blades and color pans are attached, and the printer jogs the machine a yard or so at a time. As he does so, he makes the fine adjustments needed to get the pattern in perfect fit.

Next, a strike-off is made on a 1-yd. patch, which is dried, aged, soaped, or otherwise treated as may be necessary.

The colorist checks this strike-off against the original design for accuracy of the color. The printer checks the strike-off for evenness from side to side, for registration, and for other mechanical details.

Corrections in color are made if necessary. If they are minor, the run can begin.

Sometimes it's necessary to clean out color pans completely and make major changes in the print paste, in which case another strike-off is needed.

Printing as such is completed by drying the goods after they leave the machine on dry cans. The cans are four to seven feet in diameter and are arranged so that the back of the goods touches the first can. About 50% of the moisture in the goods should be removed before the face is permitted to touch the second dry can, otherwise the pattern may be blurred and loose color will build up on the can.

Drying can be speeded up considerably by infrared heaters of various types. These heaters are usually placed ahead of the dry cans. Infrared heat is also useful in setting the resins that are used to bind pigment colors.

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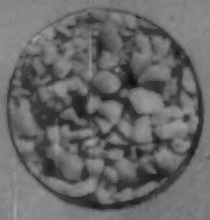

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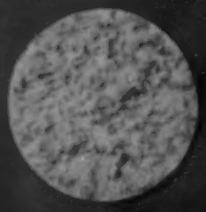

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SIMPLE EQUIPMENT like this is all you need to test fugitive tints. To get reproducible results and accurate costing, be sure the sample absorbs the measured tint solution entirely.

How to Evaluate Fugitive Tints

Here is a sound procedure you can use to evaluate the fugitive tints that help identify yarn. You can make cost calculations directly from the test methods, which are simple and accurate.

IF YOU'RE WONDERING whether the tints you're using today are the most economical for your purposes—or how new tints might stack up for cost and fugitivity—then stop wondering. Here's a test method that will help you. What's more, it's easy to use.

This test method is designed for water-soluble tints. It includes a laboratory and a mill procedure. It's flexible enough to fit the diverse needs and practices of most mills—yet specific enough to provide accurate, reproducible data for calculating comparative production costs and savings that can go 50%, or even higher still.

The test is based on application of a known quantity of tint to a known weight of fiber. It provides convenient techniques for handling the materials accurately and evaluating results visually.

Experience with this test shows that cost per pound of fiber tinted in the mill varies widely, according to the source and color of the tint selected. Cost is based on price per pound of the prepared tint concentrate and on its tinctorial strength, as reflected in the concentration required for optimum sighting intensity on the fiber.

In mill practice, prepared solution tints are normally applied at from 0.1% to over 2.0% on the weight of the fiber, according to the tinctorial strength of the tint concentrate and the degree of sighting intensity desired. In making our tests we used a typical concentration of 0.5% owf. of a commercial line of prepared-solution tints. At this strength, the treated samples were colored strongly and severe conditions for checking fugitivity were established.

This concentration (or any selected concentration) may be accurately applied to fiber samples by means of a dilute stock solution.

A simple test kit is used, consisting of a Petri dish, a calibrated dropper, and a pair of plastic gloves (see photo). The only additional equipment required is a balance for weighing fiber samples and a one-liter flask, although these laboratory items are not needed for obtaining fairly accurate mill approximations, as explained below.

Example: 5 cc. of tint-concentrate per liter of water gives a 0.5% of

By JOHN D. SAUNIER, International General Electric Co., and FRED R. TRIP, Director of Research, New Bedford Institute of Technology, New Bedford, Mass.

tint concentrate on the weight of the fiber. Make this addition in the Petri dish. Mix in more water, as required by the relative absorbitivity of the different fibers. Work the tint solution into the fiber sample with the gloved fingers to achieve a uniform, complete distribution. The gloves prevent contamination of the sample by oil and acid from the fingers and keep the loads from staining.

After the fiber sample (which may be in staple, yarn, or fabric form) has been tinted, dry it carefully and hand-card it (if it is in staple form). Make duplicate samples for later comparison. You can compare dried "as-tinted" samples directly for relative tinctorial strength—or adjust the concentration further to establish optimum sighting intensity and economy.

COMPARING FOR COSTS

Later processing of tinted samples of measuring and comparing fugitivity will usually include heat-conditioning or steaming, followed by scouring, according to accepted procedures for the fiber and for the goods to be manufactured. Again by means of duplicate samples, you can make comparison at any stage of processing—and evaluate fugitivity and tinctorial strength quantitatively and qualitatively.

Because you know the exact quantity and concentration of tint on the fiber—and because visual observation has given you an accurate measure of required sighting intensity—you can calculate the cost of applying the optimum amount of tint for those tint samples that have shown satisfactory fugitivity under the conditioning and scouring requirements set up.

You can prepare a tint selector chart that will relate fiber type or blend to color and source of tint and will be in concentration and price-cost ratios. In fact, such charts are now available from Borne Chemical Co. But each mill will augment or redraw them in terms of its own practices and needs. With a properly prepared tint selector chart, you'll find it's pretty simple to choose the best tint for a new mill run.

A re-evaluation of going jobs can often turn up situations where a charge of tint color within one source-series of tints can cut tint costs by half—or over $1,000 per year in an individual run. In any case, you can forecast the potential savings to justify more test work and change-over procedures.

NOW—STEP BY STEP

Fiber samples may be staple, tow, skein yarns, or fabric. Each has its advantages and shortcomings. Usually, though, the mill application is on loose staple or tow. That's why these would seem to be the appropriate forms for tint testing. The truth is, it's easier and faster to prepare and handle 5-gram skeins and results are comparable within the accuracy of the method.

This statement does not hold true for insoluble pigment-dispersion tints, where mechanical trapping of particles in the twisted fibers is a controlling factor for fugitivity. Tinctorial strength will appear greater in the skein than in the staple because of less light scattering and higher spatial concentration of fiber and of tint. The color will be comparable to the relative appearance of the spun yarn as opposed to the paler shade of the picker lap or card sliver.

The stock solution is diluted according to the moisture absorbency of the different fibers. This is done in each test case where several different fibers are being evaluated. But where one fiber is being checked with a number of different tints, the stock solution itself may be diluted and a new measured amount taken to provide the necessary total-solution ratio for proper distribution on the fiber samples.

In the example cited (5 cc. of stock solution added to a 5-gram fiber sample), it is usually necessary to add 3 to 5 cc. of water along with the stock solution for the hydrophobic man-made fibers and from 7 to 15 cc. of water for the hydrophilic fibers (rayon, acetate, cotton, and wool), so that the fibers will be uniformly wet out and tinted. The fiber must absorb all of this solution. A little experimentation on your part will establish the optimum solution ratio for any given fiber or blend. Note that the amount of added water has no real, effective bearing on the percent of tint applied on the weight of the fiber unless the stock solution itself is diluted.

The samples are more easily dried in the skein form by the method of "hand-reeling" or lofting of the skein in forced warm air. Where staple samples are used, they should be spread on a nonabsorbent surface or in the Petri dish or fluffed by hand in forced warm air to speed drying and avoid migration or concentration in the residual wet areas. Excessive heat will affect the fugitivity in many cases.

Heat conditioning or steaming of tinted samples must match mill practice exactly if the tests are to provide you with useful facts about fugitivity.

SIMPLE SCOURING

If color and cost are all right, a truly fugitive tint should be removed by the following scour:

Treat the sample for 5 minutes at 140 F. in a 35-1 bath that contains 0.5% Igepol CO-630 and 0.25% tetrasodium pyrophosphate. Often nothing more than a cold- or warm-water rinse is necessary. Other detergents based on ethylene oxide condensates or nonylphenol may be just as well. In mill testing, or in a situation where no balance is available for weighing out fiber samples, the following approximation will do: A baseball-size handful of staple fiber (compressible to golfball size) weighs about 5 grams (according to the fiber selected). For mixing the stock solution, a quart bottle (1.057 liters) may be used with little error. The all-plastic tint test kit (Petri dish, dropper, and gloves) is available on request from Borne Chemical Co. It is easy to carry in the pocket.

LIMITS SET UP

With this method you can evaluate water-soluble fugitive tints only for tinctorial strength and fugitivity, without considering their fiber-conditioning or other processing advantages or disadvantages.

Because there is a wide variation in the preparation and compounding of water-soluble tints in terms of stability, lubricity, antistatic efficiency, and general processing characteristics, you should weigh these factors before making final judgments of the costs.

Your Surest Way to Make

Good over-all performance is still lacking in some wash-and-wear finishes. Here's what research has discovered to improve crease and dry resistance, retain original wearing qualities of cotton and rayon

A PRETREATMENT that makes cotton or rayon fibers more receptive to resins may be the answer you've been looking for to the problem of improving wash-and-wear finishes. But, like many "discoveries," the idea isn't new.

At least 30 years ago, when resin finishing first became possible on rayons, researchers found that fibers in the swollen state absorbed urea- or melamine-gased resins much better than bone-dry fibers. Today the usual urea-to-formaldehyde ratio of 1 to 1.6 can be varied to 1 to 2, or even 1 to 3, without severely affecting strength and abrasion resistance if the fiber is in a moist condition at the time of curing.

By A. J. HALL, B. Sc., F.R.I.C., F.T.I., F.S.D.C. Consulting Chemist, Somerset, England

BOOSTING THE RATIO

You can get improved dry crease resistance for both cotton and rayon fabrics if you use a higher formaldehyde content in the resins.

Actually, the higher proportion of formaldehyde most likely produces cross links with the cellulose molecules rather than combining with the urea or malamine present. Formaldehyde crosslinking makes for good crease resistance. But unless it takes place under proper conditions, severe loss of strength is inevitable, especially if you're treating cotton (table below, left).

You can also increase the durability of the finish to repeated launderings by such formulations. But, unless curing conditions are right, the abrasion resistance and wearing qualities of the fabrics will be impaired somewhat.

The value of the presence of at least 10% of superheated steam in the curing chamber is illustrated by the data in the table (bottom, facing page) showing good abrasion and crease resistance.

These trials were run on spun

Good Crease Resistance, Low Abrasion Resistance

Fabric	F/U ratio	Resin in fabric (%)	Crease resistance Warp	Crease resistance Filling	Ring wear cycles	Laundry shrinkage Warp	Laundry shrinkage Filling
A	1.6/1	16.8	3.25	2.68	477	0.9	0.3
B	2.5/1	15.7	3.73	3.18	145	0.3	0.2
U	.....	....	2.88	1.95	1,303	12.8	11.6

GOOD CREASE RESISTANCE but not-so-good abrasion resistance is a result of raising the formaldehyde-urea ratio when you treat spun-rayon fabrics.

Better Wash-and-Wears

rayon fabrics. They show that residual shrinkage is also considerably improved by the moist-cure process.

Tests made on spun-rayon dress fabric with different F/U ratios and cured without added moisture confirm the fact that high F/U ratios drastically reduce abrasion resistance, as shown.

Note: In the TBL test for crease resistance, a 4x1 cm strip of the fabric is folded with the short edges together and pressed under a 500 gram weight for three minutes. The fabric is then hung over a horizontal wire and left to unfold. The crease resistance is measured by the distance in centimeters between the two ends. It is greater as this distance is greater.

FEWER CREASES

Experience of consumers indicates that in home laundering, most wash-and-wear finishes tend to crease badly in the spin-dry cycle—so much that final ironing may be just as extensive as was needed for plain-finished goods.

Good wet-creasing resistance can be built into your wash-and-wear fabrics by a pretreatment with caustic solutions.

Research has clearly shown that you can treat rayon in caustic soda solutions of 5-6% strength without subsequent damage to the fabric. Even stronger solutions may be used if common salt is also present to control swelling.

A typical treatment involves running the goods through a solution of 80 pounds of caustic soda and 80 pounds of common salt per 100 gallons. First, give the goods a one-minute immersion, then follow immersion with complete washing and tenter drying. The common salt may be replaced by 20 gallons of 100 TW sodium silicate solution.

Rayon treated in this way, after neutralization and washing, can be finished with resins to give greatly improved wet-creasing resistance in laundering. If creases are formed in the dry fabrics during service, they will disappear almost completely upon wetting.

You can largely eliminate the risk of treating rayon with caustic soda under any and all conditions if you use caustic potash. Although caustic potash is considered very similar to caustic soda in its chemical reactions, it does not rupture and dissolve regenerated cellulose to any noticeable degree.

A satisfactory treatment to improve wash-and-wear finishes on rayons is to soak the goods for one hour in an 11% solution of caustic potash at 18 C. in the open width. Thorough washing with water follows, and then the goods may be scoured in 1% acetic acid to remove any running traces of alkali.

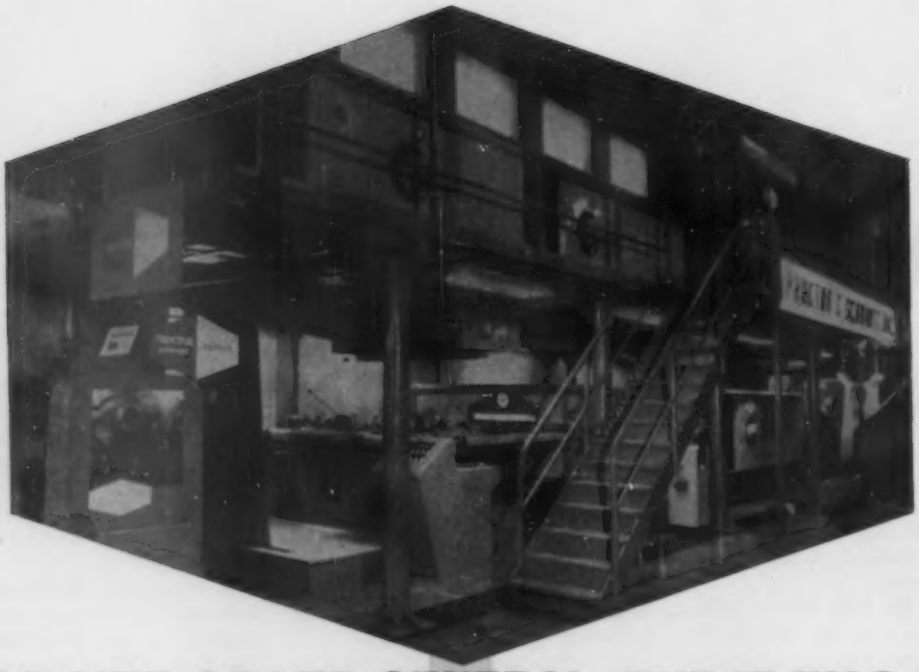
The combination of high formaldehyde ratios, preswelling, and curing in the presence of steam will give you wash-and-wear characteristics that are really superior.

For cotton goods, the preswelling treatment may take place in the mercerizing process. When goods are mercerized with the idea of getting a good preswelling effect, tensions in both warp and filling directions should be lower than for regular mercerizing procedure.

Good Abrasion and Crease Resistance

Cure	F/U ratio	Resin in fabric (%)	Crease resistance		Ring wear cycles	Laundry shrinkage	
			Warp	Filling		Warp	Filling
With steam	3/1	12.1	3.38	3.15	957	0.7	0.9
Without steam	1.6/1	17.1	3.33	3.18	533	0.9	1.6

GOOD ABRASION RESISTANCE with good crease resistance comes from excess moisture during curing. Resin content of steam-cured samples is about 2/3 of dry-cure sample.



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In wash-and-wear finishes, for example, A-C Polyethylene overcomes loss of "hand" and tear strength when used along with the thermosetting resins commonly employed in finishing wash-and-wear.

Write today for more information. Why not find out all about this new advance in textile finishing? Your textile chemical supplier either has an A-C Polyethylene finish on hand or can formulate one for your specific needs. Anionic, cationic and nonionic emulsions are available to fit all needs. (We are manufacturers of resins, not finishing emulsions.) Or write to us direct for complete information at the address below.

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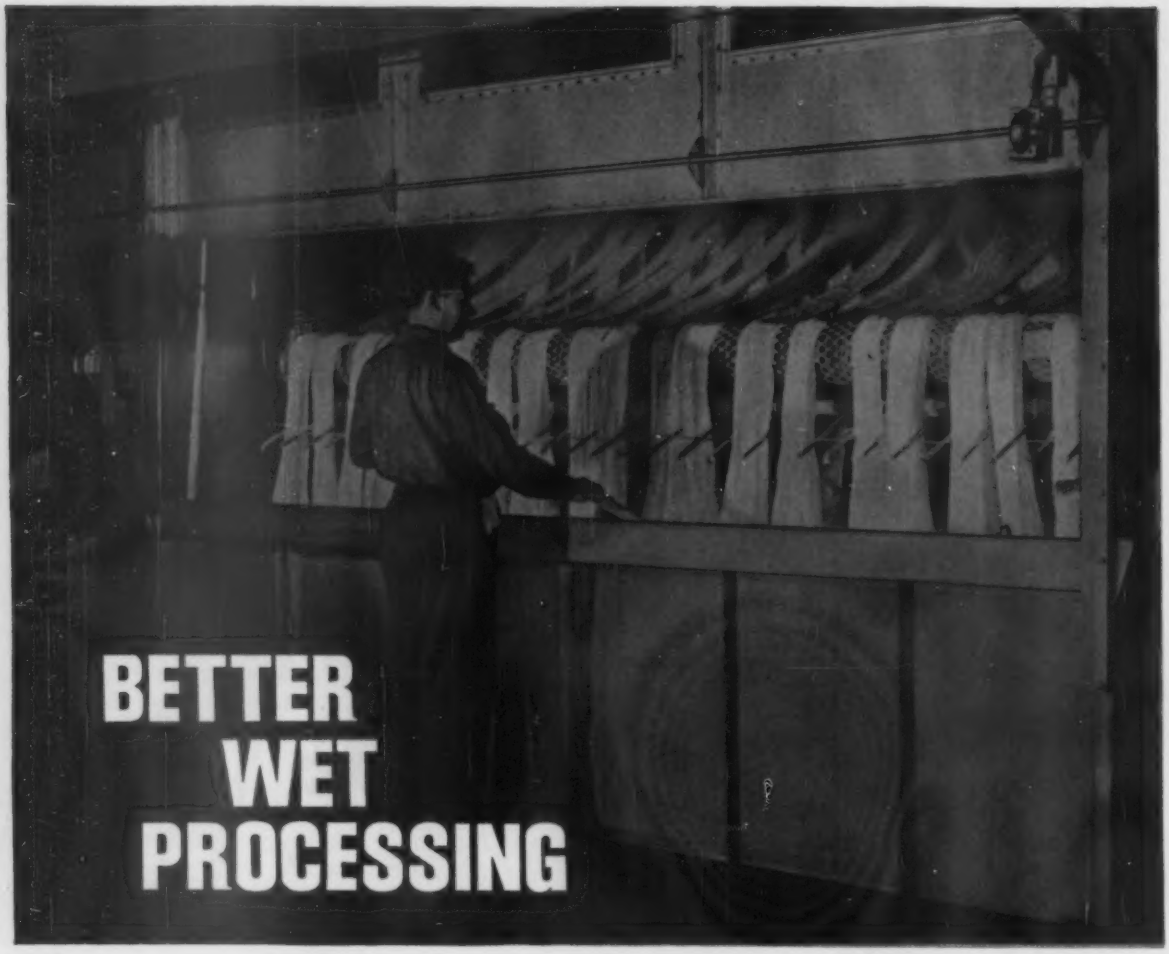
New York 6, N. Y.

National Distribution • Warehousing in Principal Cities

CIRCLE 85 ON READER SERVICE CARD 85



. . . easier with TRITON surfactants

The TRITON line offers textile processors a surfactant for virtually every textile wet processing operation.

In the boil-off of synthetic fabrics, TRITON surfactants have great emulsifying power and detergency for removal of spinning oils, oily and dry soil.

In kier boiling of cotton, TRITON surfactants help produce whiter, cleaner fibers and more uniform results. Superior wetting properties result in better circulation of kier liquor, improved efficiency and a fast drain. The wide range of compatibility of the TRITON surfactants makes them outstanding as desizing and bleaching assistants.

TRITON surfactants are also effective assistants in dyeing cellulose raw stock, yarn or piece goods. In wool scouring, TRITON surfactants offer low cost, quick and thorough rinsing, low alkalinity, and softer, cleaner, more uniform scoured stock. Other applications for TRITON surfactants include fabric fulling, color stripping, bleaching, desizing, and after-scouring dyed or resin-treated goods.

Get the latest bulletin describing TRITON surfactants and their advantages in wet processing by sending a request, on your company letterhead, today.

TRITON is a trademark, Reg. U. S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

TRITON

THE INHERENT PURITY OF DIAMOND CRYSTAL SALT IS YOUR KEY FOR PRODUCT IMPROVEMENT!

Diamond Crystal CMF (Calcium Magnesium Free) and Louisiana Rock Salt offer textile and dyestuff manufacturers extremely high purity at low cost. The result? Consistently better products for you.

Protect the quality of your finished product! Diamond Crystal CMF (Calcium Magnesium Free) type salt will help you eliminate streaking and off shades caused by calcium and magnesium in the dye bath. Result: Fewer Rejects—Higher Profits.

In addition to CMF, Diamond Crystal Louisiana Rock Salt (from Jefferson Island—one of the purest salt deposits in the world) enables textile operations to use this Louisiana Rock Salt (99% pure at its source) without costly side reactions.

For immediate service and consultation, for all your salt needs, call the nearest Diamond Crystal sales office or write to Diamond Crystal Salt Co., St. Clair, Michigan.

Diamond Crystal Salt Co.

ST. CLAIR, MICHIGAN

Sales Offices: Akron • Atlanta • Boston • Charlotte
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Minneapolis • New Orleans • New York
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CIRCLE 89 ON READER SERVICE CARD

Paul McHail, who directs the prompt handling of thousands of orders each month, says you'll like doing business with Columbia-Southern

Customers' orders flowing through Columbia-Southern's Order and Service Department, directed by Paul McHail, are routed without delay to the appropriate shipping point by means of a modern, direct communications network. During their brief passage through the Department, they are checked against customers' standing specifications and given complete routing instructions by representatives of the Traffic Department. The central location of Order and Service at Columbia-Southern's Pittsburgh Headquarters provides close contact with product managers and others, making fast decisions an everyday reality.

Shipping Departments at each plant work as efficiently to carry out the instructions promptly and accurately, speeding products to users as directed.

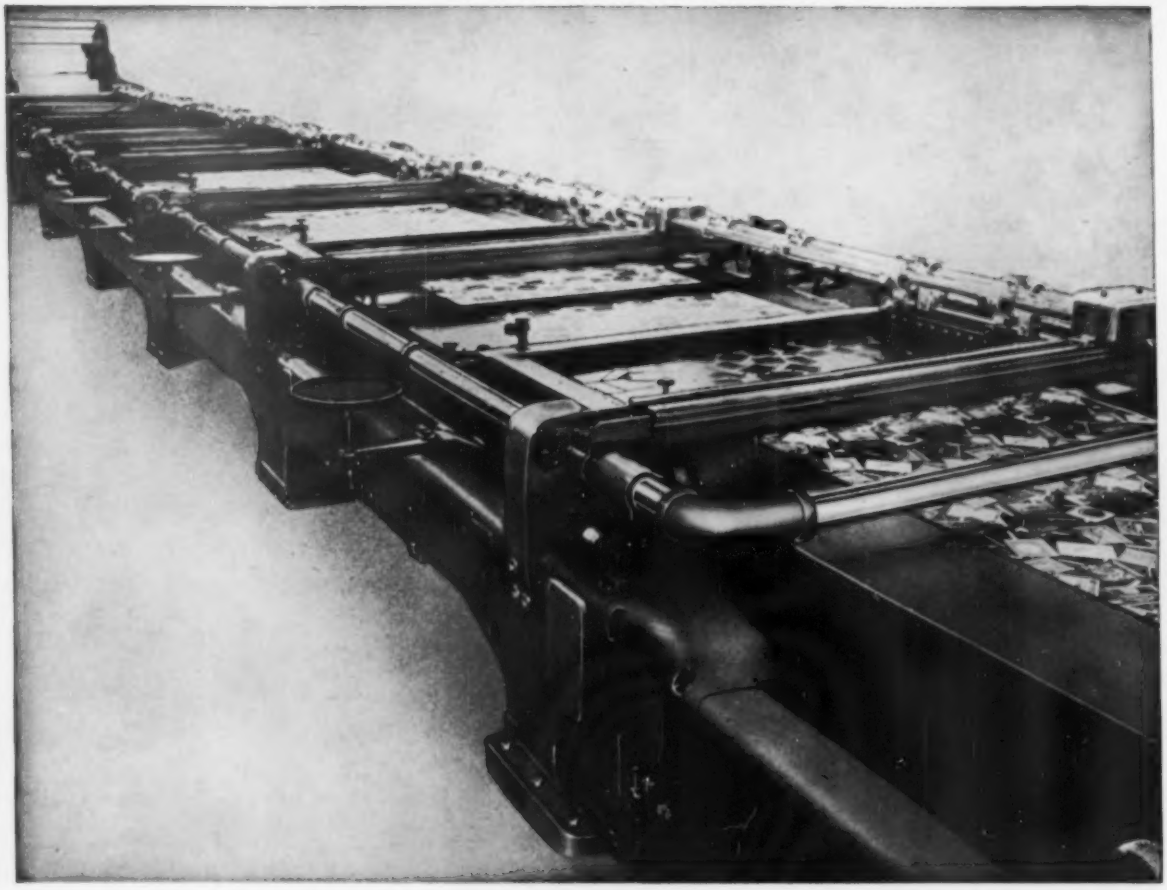
District Sales Offices play a big part in the function, maintaining close contact with customers and serving as direct liaison between Columbia-Southern and the customer organization, promptly relaying special instructions, questions, and answers in both directions, and providing users of Columbia-Southern Chemicals with the greatest possible degree of flexibility.

This concern for doing things the customer's way explains why so many organizations, representing every industry, rely on Columbia-Southern as a primary supplier of their chemical requirements. They like Columbia-Southern's habit of giving more than just the products specified on the order form. So will you!

Anhydrous Ammonia, Barium Chemicals, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchlorethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene

columbia | southern chemicals

COLUMBIA-SOUTHERN CHEMICAL CORPORATION • A Subsidiary of Pittsburgh Plate Glass Company • One Gateway Center, Pittsburgh 22, Pa.



Screen Print up to 12 yds. of Fabric Per Minute with an **ICHINOSE-TYPE** Patented MULTI-COLOR AUTOMATIC SCREEN PRINTING MACHINE

The Ichinose Screen Printing Machine, with more than 60 patented features, screen prints all kinds of fabric perfectly in up to 21 colors at nearly double the speed of other machines on the market. Finished prints are of highest quality, clean, sharp, accurate and far superior to hand or roller prints.

Ichinose means greater economy, too, both in initial cost and in operation and maintenance. It consumes less power, steam, and dye paste, while cutting labor costs to only two operators per machine. Change of design and colors takes less than 30 minutes.

Machines with various different repeats up to 72" and fabric widths up to 60" can be supplied.

To ensure complete satisfaction, all Ichinose machines are installed by our own technicians anywhere in the world. Write today to Dept. TW8 for illustrated catalogue and printed fabric samples.

TOSHIN KOGYO CO., LTD.

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OSAKA, JAPAN
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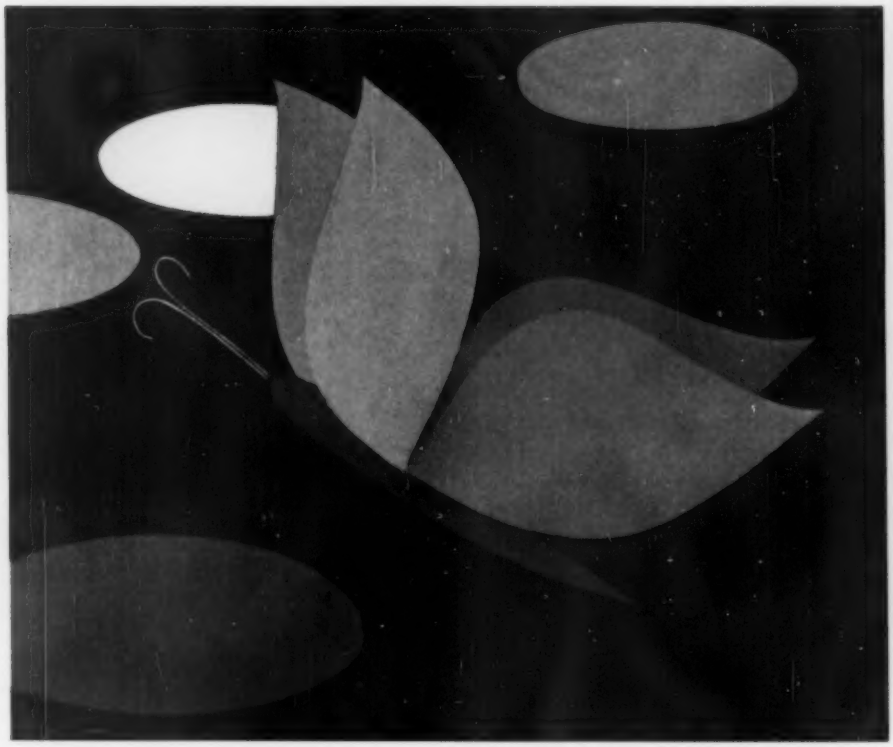
PUTNAM PRODUCTS FOR THE TEXTILE INDUSTRY



2042

Palanil® Dyestuffs

A complete range for dyeing and printing of polyester fiber material and blends with wool and cotton, satisfying all demands for fastness properties.

PALANIL Dyestuffs can be dyed with a carrier* at normal temperatures, or by all high temperature methods.

Palanil Carrier TX 5064 is a completely new type of carrier water soluble, non volatile, no odor, no effect on light fastness, no swelling of fiber, easy to apply.

BASF

knows how

In Canada contact:

Consolidated Dyestuffs & Chemicals Ltd.
395 Beaumont Avenue
Montreal 15, Quebec

Samples and technical information available from:

PUTNAM CHEMICAL CORPORATION
BEACON, N.Y. • CHARLOTTE, N.C.

DISTRIBUTORS IN U.S.A. FOR *Badische Anilin & Soda Fabrik A.G.*
LUDWIGSHAFEN A. RHEIN, WEST GERMANY

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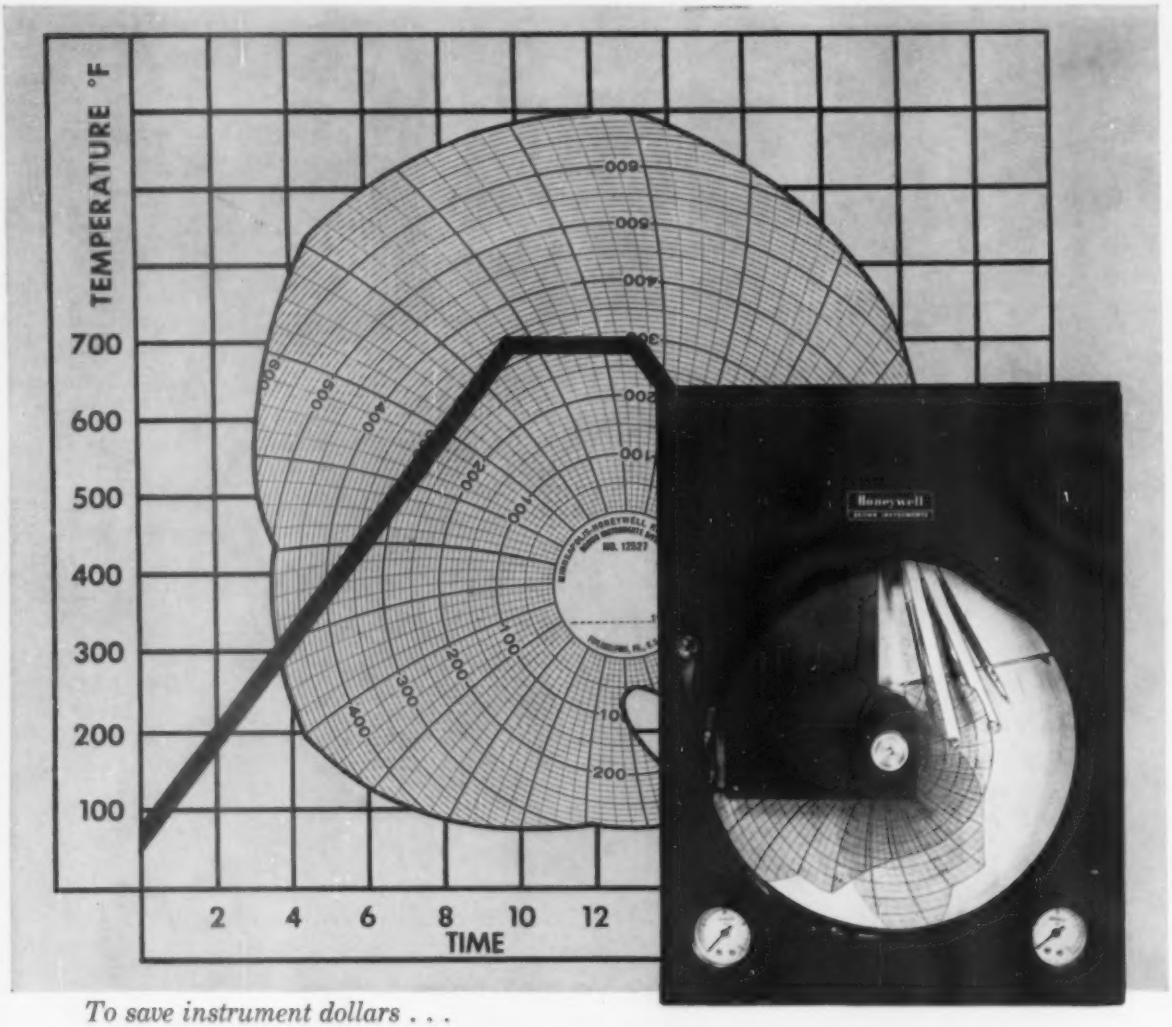


To save instrument dollars . . .

PROGRAM-CONTROL TWO PROCESSES WITH ONE THERMOMETER-CONTROLLER

Use dual-cam dual-control thermometers in size cooking, piece goods dyeing—in *any* process that requires precise time-temperature control for batch-to-batch uniformity.

This versatile Honeywell cam program thermometer is the equivalent of two separate program control thermometers in a single instrument case, and can carry out two related or even two entirely unrelated process programs at once.

The instrument has two thermal systems, two pens, two control units, two cams and two cam drive motors. Process patterns are cut into the cams to the pattern desired in the controlled variables. Every time a particular cam is used, the same program is repeated *identically* time after time, without attention from the operator.

The set point indexes automatically change position in response to turning of the cams. Behind the cams—transparent so you can see the chart through them—pens draw records of the measured values of the variables. Automatic control units signal final control elements to vary flow of control agents in accordance with program requirements.

Automatic programming gives you consistent quality, reduces the need for operator attention and increases productivity. Your nearby Honeywell field engineer can help you work out the most efficient and economical approach to program control. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.—In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

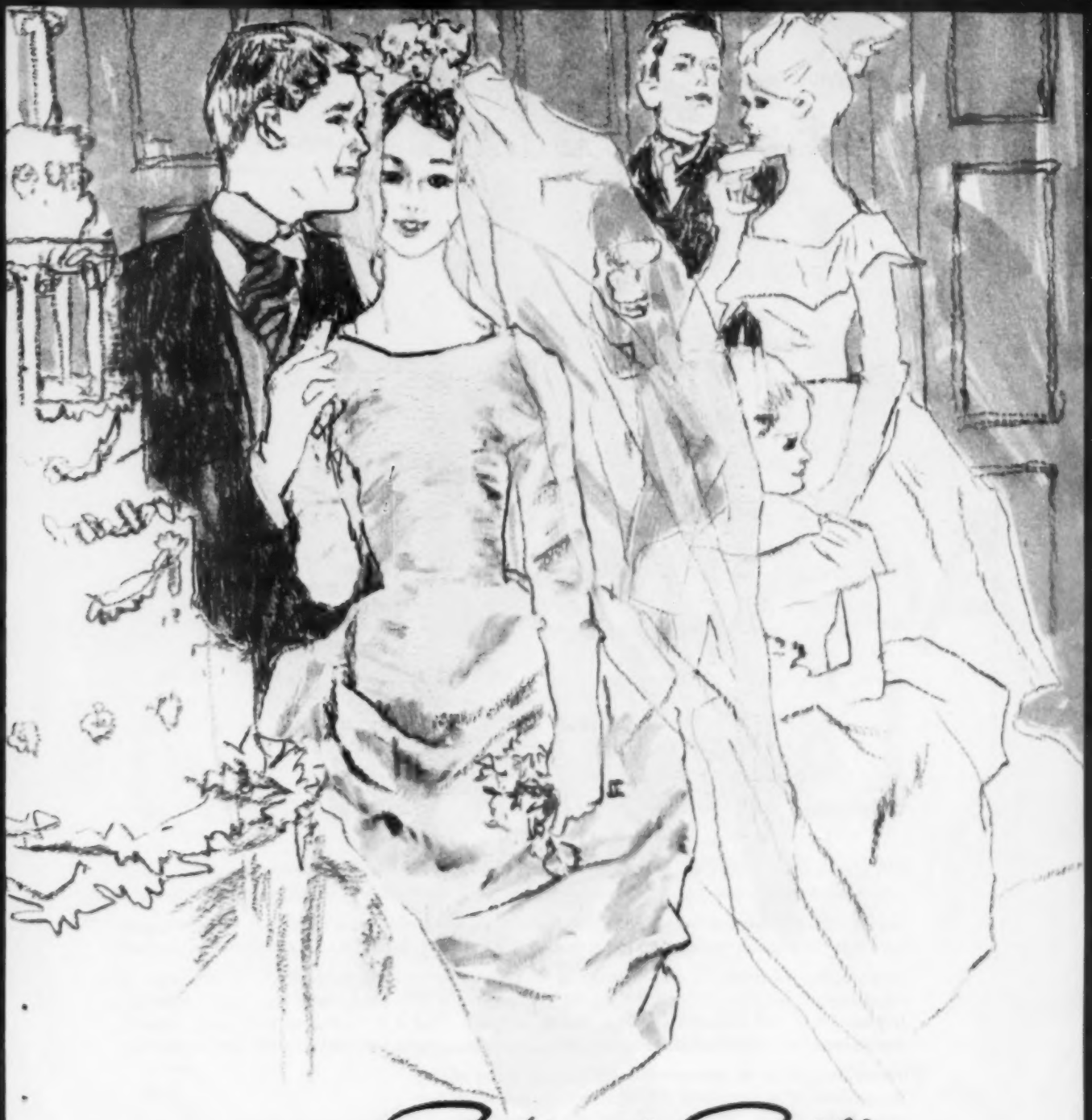
75th YEAR — ENGINEERING THE FUTURE

Honeywell

First in Control

SINCE 1885

CIRCLE 95 ON READER SERVICE CARD→



Satins to Suitings...

CELANESE PVAc EMULSIONS MEET EVERY FINISHING NEED

Versatile Celanese PVAc emulsions have a range of useful properties to satisfy every finishing requirement • Appropriate formulations can increase durability of woven fabrics varying in weight from percale to heavy twill. Tensile strength and wrinkle-recovery can be improved . . . handle modified for greater stiffness • An informative Bulletin HP28, "Textile Finishing With Celanese Acetate Emulsions", contains helpful data on properties, applications, formulations and processing procedures for many fabrics. Please write for a free copy • Celanese Chemical Company, 180 Madison Avenue, New York 16. Celanese®

Celanese CHEMICALS

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Another new development using

B.F.Goodrich Chemical *raw materials*

NEW REACTIVE ACRYLIC LATEX

HYCAR 2671 is a new reactive acrylic latex that gives finishes that are durable, dry cleanable, and washfast—at lower processing cost, without the disadvantages you get with resin additives.

Ideal for a wide range of back coatings. Simplification of compounding operations reduces processing costs. You get outstanding washfastness, dry cleanability, hand, and resistance to discoloration.

New promise for adhesives and laminations. This latex overcomes problems of stiffness and discoloration, at the same time producing outstanding bonds with good washability and resistance to solvents. Both wet adhesive and heat sealing methods using it have proved themselves. Already, results have been highly satisfactory in cottons, acetates, rayons, acrylics and other man-made fibers.

Opens new fields for non-wovens. By solving many of the problems that have kept non-wovens from the outerwear field, Hycar 2671 now makes them practical. Compounding is simplified, costs reduced and washing and dry cleaning performance considerably improved.

Hycar 2671 is another product designed to help you produce better textiles for wider appeal, often at lower cost. For more information, write Dept. KB-4, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich

GEON vinyls • HYCAR rubber and latex • GOOD-RITE chemicals and plasticizers

CIRCLE 97 ON READER SERVICE CARD →

Improve quality–

lower handling costs with... **GLOBE®** *easy flow starch*

WRITE OR PHONE *Corn Products for expert technical assistance... helpful data on these fine products for the Textile Industry:*
GLOBE® · EAGLE® · FOXHEAD® · TEN-O-FILM® and CLARO® starches · GLOBE® · EXCELLO® dextrines.

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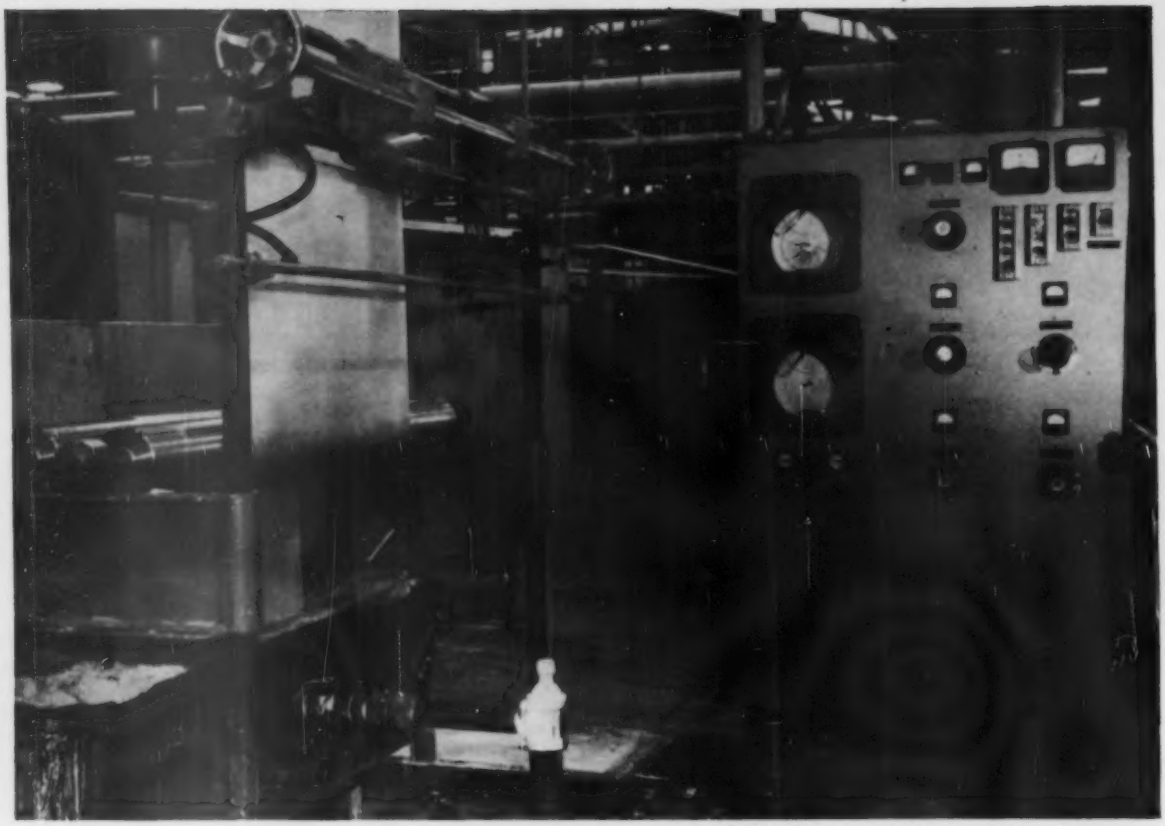


Foxboro Density Control on Mercerizing Saturator at Grace Bleachery, Springs Cotton Mills, Lancaster, S. C.

Springs Cotton Mills improves uniformity of mercerizing...

Foxboro Automatic Caustic Density Control pays for itself

Caustic strength is maintained right where it's set at Springs Cotton Mills' Grace Bleachery, Lancaster, S. C. It's done simply and automatically with a Foxboro Caustic Density Control System.

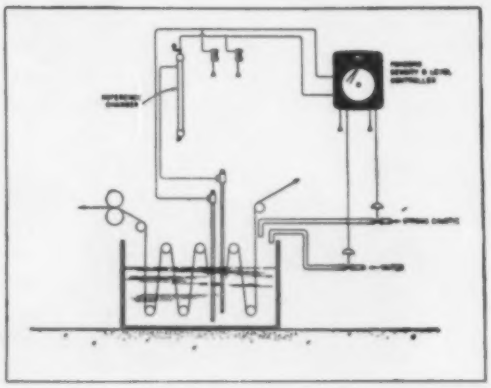
This system eliminates hand-sampling, log-keeping, guesswork—produces better mercerizing through high uniformity of treatment. Changes in mercerizing speeds, or complete shut-downs, do not affect caustic strength of the bath.

And best of all, since it completely eliminates caustic overcharging, this Foxboro system will pay for itself in a matter of months on caustic savings alone. Little wonder Grace Bleachery now has *all 6* of their mercerizing ranges under Foxboro control.

This cost-cutting, automatic Foxboro system can be installed on new or existing equipment without interrupting operations. Get full details in engineering data sheet 220-221. The Foxboro Company, 848 Neponset Avenue, Foxboro, Massachusetts.

FOXBORO

REG. U.S. PAT. OFF.



Typical application of Foxboro Density Control

Foxboro Density and Level Controller records accurate measurements of caustic density and liquid level. Controller also positions strong caustic and water (or weak caustic) valves to maintain set values.

Softness sold this towel...

and CARBIDE's amines gave it that softness

Textile softeners, based on CARBIDE's amines, give linens and cottons the softness that makes them sell. And, with the complete selection of amines available from Union Carbide, you can make textile softeners that give the right kind of softness for best sales appeal in finished goods. Cationic mill-softeners, prepared by fatty acid esterification or amidification of CARBIDE'S amines, offer a full range of softening effects. Here are seven amines for your evaluation:

- Triethanolamine
- Diethanolamine
- N-Aminoethyl Ethanolamine
- N-Methyl Diethanolamine
- Diethylene Triamine
- Dimethylamino Propylamine
- Diethylamino Propylamine

Remember, whether you need amines . . . UCON textile lubricants . . . anti-foaming agents for scouring and mercerizing . . . water-insoluble solvents to achieve deeper and fuller shades in dyeing . . . monomers for fiber syntheses . . . ethanolamines and TERGITOL nonionic surfactants for detergents . . . or other organic chemicals for finishing agents and lubricants . . . you'll find them at CARBIDE. With more than one hundred CARBIDE textile chemicals to choose from, you can take advantage of the increased savings of bulk buying in mixed tank car and mixed tank truck lots, or mixed carload lots in drums.

For information and help from experienced Technical Representatives, call your nearest CARBIDE sales office or write to: Union Carbide Chemicals Company, Division of Union Carbide Corporation, Dept. J, 270 Park Avenue, New York 17, N. Y.

TERGITOL, UCON and UNION CARBIDE are registered trade marks.

UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

CIRCLE 99 ON READER SERVICE CARD

costics *(or, how to pinpoint your caustic costs)*

Caustic economy consists largely in choosing the right grade. Wyandotte offers liquid caustic in 50% and 74% concentrations, and anhydrous caustic in six forms . . . including a special grade for rayon. Which for you? Your Wyandotte representative will be happy to apply his broad experience in caustic selection to your particular problem. Call on him. *Wyandotte Chemicals Corporation, Michigan Alkali Division, Wyandotte, Michigan. Offices in principal cities.*

CIRCLE 250 ON READER SERVICE CARD

ATTENTION...

CHEMISTS, DYERS FINISHERS and all those engaged in Chemical Treatment Process

The new FACT FILE issue will have 16 pages of useful handbook-type information on bleaching, dyeing, finishing techniques.

WATCH FOR THIS IMPORTANT ISSUE

- ***Supervision***
- ***Control***
- ***Management***

SOMETHING

FOR THE WHOLE TEAM

at the **21***st Biennial*

SOUTHERN TEXTILE EXPOSITION

OCTOBER 3-7 • 350 EXHIBITORS

TEXTILE HALL – GREENVILLE, SOUTH CAROLINA

AT THE ELBOW OF THE MILL MAN EVERY HOUR

S-W ROLL EXPERIENCE

that brings improved processing with new products like

SEALSKIN® Slasher Rolls

which outlast other covers by 100% in most cases, which are reported to last up to 25% longer between grindings, which are described in the S-W "Sealskin" Bulletin.

STOWE-WOODWARD, INC.

Newton Upper Falls, Mass.

Neenah, Wisconsin • *Griffin, Georgia*

on the West Coast • HUNTINGTON RUBBER MILLS, INC. • Seattle, Washington • Portland, Oregon • Port Coquitlam, British Columbia, Canada

"How to Get Longer Life from a Rubber Covered Roll" — will be sent to you upon request.

TC HYDRO

A BASIC PRODUCER FROM MINE TO FINISHED PRODUCT

Our basic position enables us to maintain a rigid quality control program from mine to finished product—your assurance of Sodium Hydrosulfite of highest purity.

TC Hydro is a dry free flowing crystalline powder of uniform size and structure—dust free, assuring highest stability and uniformity.

We invite inquiries.
For complete listing of our products see our inserts in CHEMICAL WEEK BUYERS' GUIDE, Pages 173-176 or CHEMICAL MATERIALS CATALOG, Pages 551-554.

TC TENNESSEE CORPORATION
612-629 Grant Building, Atlanta 3, Georgia

102 CIRCLE 102 ON READER SERVICE CARD

let's talk about...

LAURAVEL SC CONCENTRATED

Here's a new, *improved* Laurel nonionic softener ideallly suited for the finishing of all types of yarns and fabrics. It is a soft paste, readily dispersible in hot water. It is highly resistant to aging and will not alter shades, nor yellow whites.

LAURAVEL SC CONCENTRATED is highly resistant to salts, acids and alkalis, as well as many chemicals, such as chromium salts carried over from previous boxes in continuous finishing ranges. You'll find this quality Laurel product more compatible with other finishing agents, such as resins and dextrins, than many of its anionic counterparts.

Fabrics finished with LAURAVEL SC CONCENTRATED show excellent resistance to scorching. This provides added insurance against overdrying.

You'll like the full bodied softness that LAURAVEL SC CONCENTRATED imparts to fabrics and its excellent lubrication which improves sewing and cutting properties. It is also useful as a replacement for many conventional oils and softeners used in compressive shrinking processes, giving a hand which is not limp and raggy.

Generous, free trial samples of LAURAVEL SC CONCENTRATED are available. Why not write today?

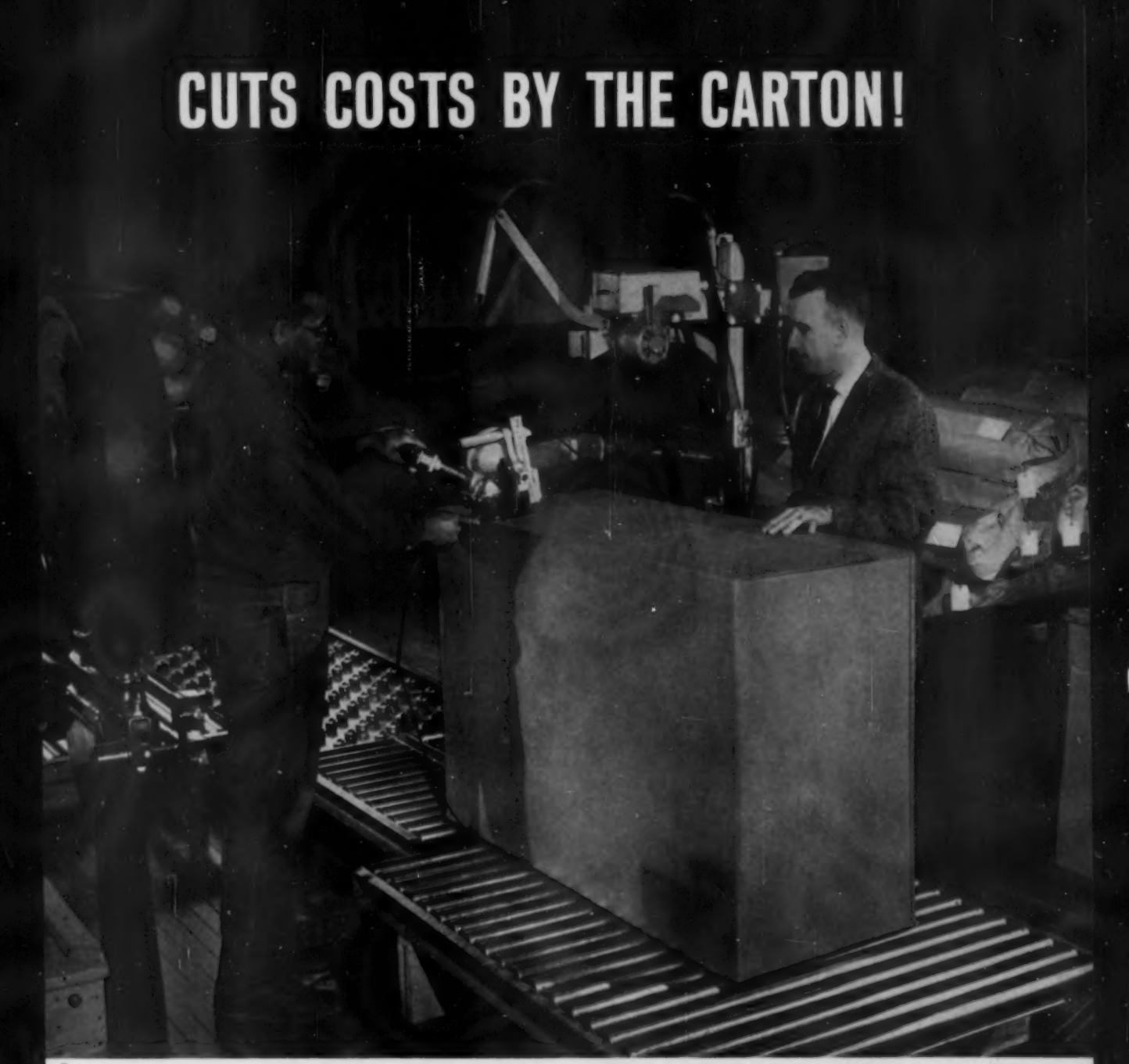
Laurel Brand — OVER 50 YEARS OF SERVICE TO INDUSTRY

Laurel
SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS. • PHILA. 34, PA.

Warehouses: Paterson, N.J. Chattanooga, Tenn. Charlotte, N.C. Greenville, S.C.

CIRCLE 251 ON READER SERVICE CARD

CUTS COSTS BY THE CARTON!



Acme Idea Man E. S. Lumpkin, who suggested Idea No. 55-17, views it in action at Virginia Mills, Inc., Swepsonville, N. C.

This textile mill now straps 25% more cartons per day with only half the manpower! They simply converted from a two-man hand strapping operation to an Acme Steel fully-powered A4 Pneumatic Steelstrapper and E41 Power Strap Feed Unit.

The versatility of this equipment easily accommodates all sizes of cartons. And its speed allows the packing department to keep pace with increased production without adding personnel.

If *you* would like to pocket more profit by improving packaging techniques, call your Acme Idea Man, or send the coupon for facts.

ACME STEEL

IDEA LEADER IN

STRAPPING

CIRCLE 103 ON READER SERVICE CARD

ACME STEEL COMPANY
Acme Steel Products Division
Dept. TBS-80
135th St. & Perry Ave.
Chicago 27, Ill.

Please send me Idea No. 55-17 and examples of how major companies in my field use Acme Steel Strapping.

Name_____

Title_____

Firm_____

Address_____

City_____ Zone____ State____

COST CUTTERS

Better Creeling with Pigtail Twisters

New twister-creel device now in operation at Candlewick Yarn Mills, Inc., Dalton, Ga., is specially made for pigtail creeling.

That's why yarn never runs out, and that's why production is continuous with continuous creeling.

The specially made creel was supplied to Candlewick by Sunray Co., Spartanburg, S. C. It contributes to ease in creeling because:

. . . Full spinning bobbins (4 pounds) are stored on one side, and

. . . Empty bobbins are placed on the other side.

To improve efficiency further, twister frames (like those in the photo) will soon be replaced with new Meadows twisters with 8½-in. rings that will be able to hold an 8-lb. package.

Keeping Tabs on Fiber Content

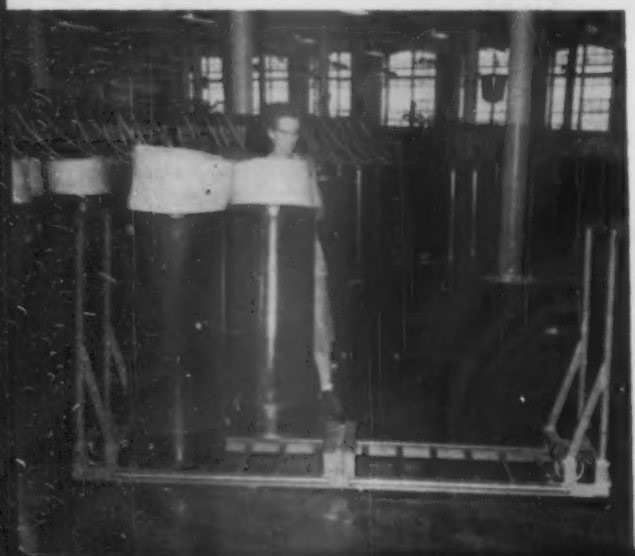
Over 300-dozen sweaters pass through the plant at Herbert Mills Co., Inc., Marion, S. C., each day. Herbert knits the fabrics and makes the finished garments in the same plant.

The Federal Trade Commission labeling-act rule really complicated shipping at the mill when the rule went into effect last March 3, because Herbert uses so many fibers and blends of fibers.

But management men bought a tag-imprinting machine (A. Kimball Co.) specifically designed to solve marking problems created by the Textile Fiber Products Identification Act.

The machine marks 10 tickets in strips at once for any blend of fiber. A girl operator prints the tickets in addition to performing other work.

The new machine is tucked away in a corner of the sewing room.



Special Truck Moves Big Cans

When Henderson Cotton Mills, Henderson, N. C., first started using large sliver cans in the card room, operators had to manhandle them along the floor from machine to machine. The shoving and pushing was hard on the operators, the floor, and the cans.

The mill solved the problem by designing and building a special underslung truck as shown in the photograph.

The low silhouette makes it possible for the weakest operator in the mill to load the truck by tilting up one edge of the can and sliding it over the cross bars to the center of the bed. Capacity is four cans.

Aside from the obvious advantages of fast, easy movement without damage to floor or cans, the trucks are pushed directly under drawing or roving creels and left in place until the stock runs out.

New Bags Cut Handling Costs

Coronet Piece Dye Works, Elmhurst, L.I., uses a special truck equipped to hold Dynel bags open to receive dyed pieces that are ready for extraction, drying, and finishing.

The set-up illustrated is a big improvement over the usual method of laying out wrappers on a drain board, watching each piece to be sure it piles up properly, and then tying up the four corners of each wrapper around each piece and lifting the wet and heavy pieces into a truck. The pieces then had to be lifted out of the truck and placed in the extractor.

Coronet finds that with their new system, unloading and handling time is cut in half and pieces are better protected by the Dynel bags.

Dynel's strength and chemical resistance make for long life; and it absorbs little or no dye, thus eliminating any staining.

Cutting Packing Labor Costs

It used to take four men to handle packaged boxes at Dan River Mills, Inc., Danville, Va. Now a single operator handles two strapping machines (Acme Steel Co.) and weighs and labels the containers. This new set-up has released the three other men for reassignment to production operations.

Goods for shipment are made up on a conveyor in cases by invoice. Then machines make the jobs of packing goods into telescope containers (or regular slotted containers) and numbering cases in sequence a quicker, easier task, than it used to be.

Cases are weighed at station on a live conveyor system. After the boxes are weighed, power and roller conveyor lines carry them to the strapping machines. An electronically controlled chain belt separates large and small boxes so that large boxes run past a strapping machine.

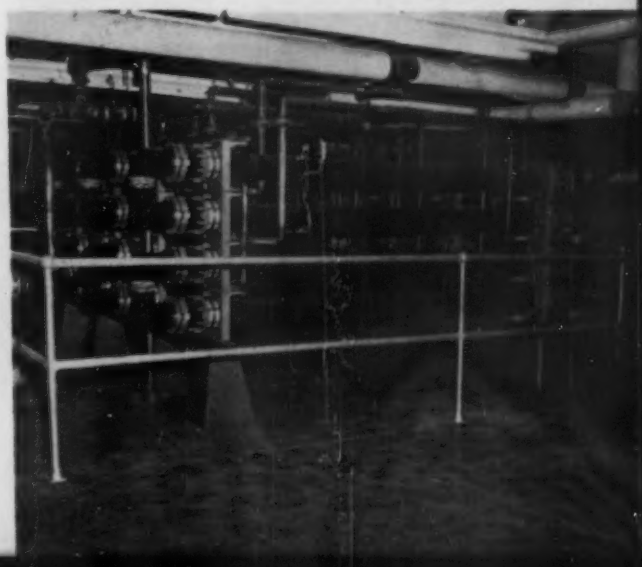
Heat Exchanger Spares Boilers

At American Thread Co., Sevier, N. C., a Pyrex glass heat exchanger is cutting hot water costs more than 36% below previous figures.

This new heat exchanger, one of the largest of its type, was chosen for its resistance to corrosion. Dye liquors touch nothing but glass, Teflon, or ceramic.

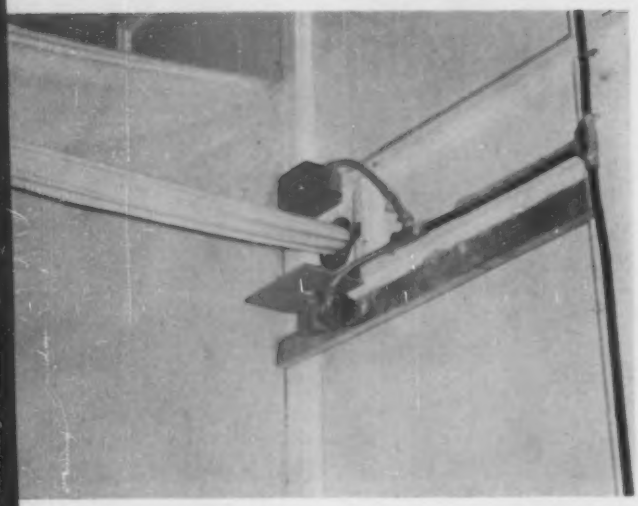
The installation consists of 16 shell-and-tube exchangers stacked four high in four groups. Hot dye liquor, diverted into trenches by thermostatically controlled valves, passes through the tubes in the exchanger, while incoming fresh cold water passes through the shell. The total heat-exchanging area is slightly over 50 square feet, which provides an average rise of 37 F. to incoming water. The system is set up to handle 500 gpm. of both fresh and waste waters.

. . . Turn the page



COST CUTTERS

. . . *Begins on page* 104



Electric Eye Catches Run-Outs

A Southern bleachery eliminated time losses due to runouts by installing an electric eye between the gray room and the singe-desize unit.

In this particular plant, the gray room is walled off from the bleachery proper, and goods are hauled from the layout areas through a wall poteye.

The singe-desize unit operator thus has no adequate visual warning if a loose end comes through unexpectedly. The usual result of this type of trouble is a good half hour lost in rethreading the equipment, and sometimes even longer.

Now, as long as goods are passing through the poteye, light from the light source cannot reach the selenium cell, or the switches that it controls.

But if a loose end comes through, light strikes the cell, which actuates shut-down switches for gas and power on the singe-desize unit.

Equalized Jobs Cut Labor Turnover

Doffing is a tough job, as everyone knows, and it is extremely important to keep work assignments equalized to prevent excessive labor turnover. Here's how Spartan Mills, Spartanburg, S. C., keeps its labor turnover down to a minimum:

Doffer work assignments are regulated by a control board located in the spinning-room office. On the board is a floor plan of the spinning room that shows the location and number of each frame and the yarn number being spun.

The block of frames assigned to each doffer and the yarn number for each frame are marked with a grease pencil on a transparent overlay. When a yarn number is changed, the doffer's machine assignment is changed accordingly, and the new number is put on frames in an area where similar numbers are being made.

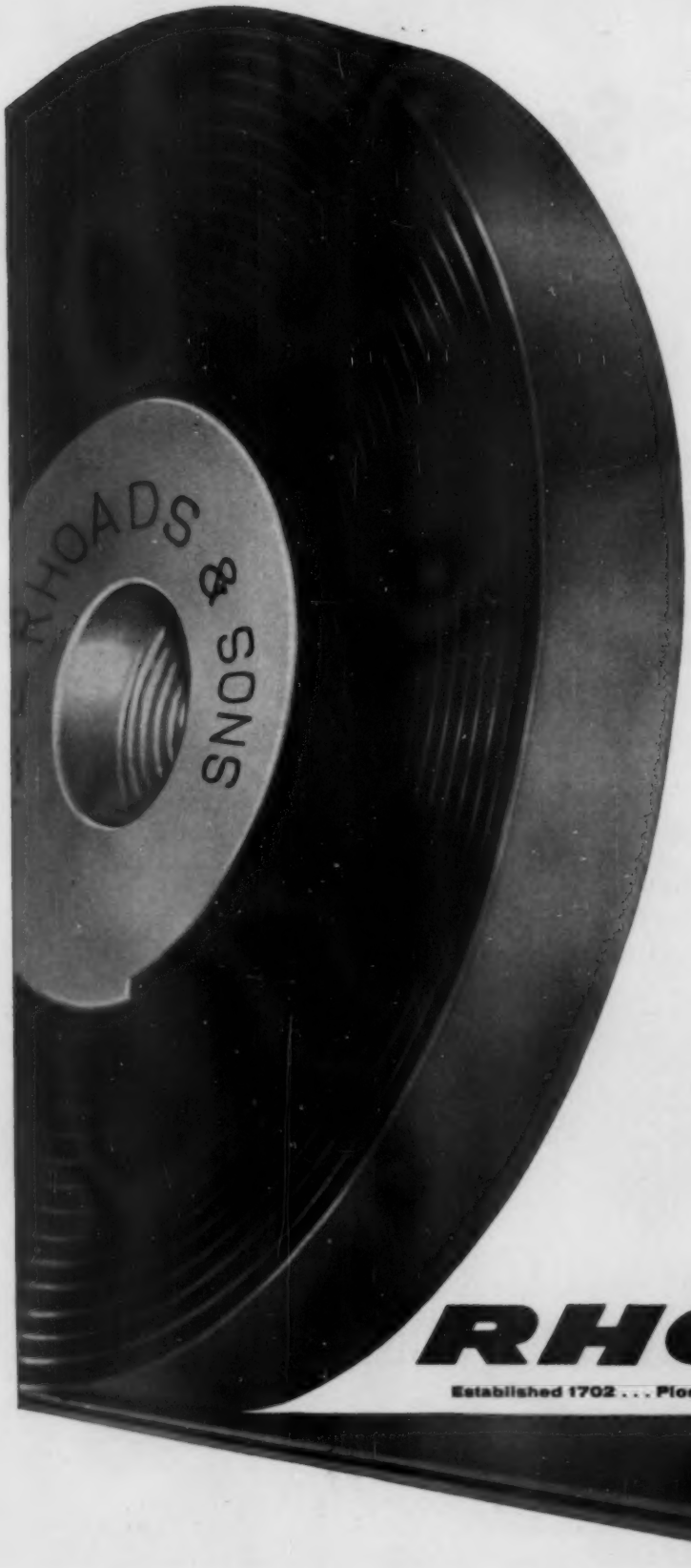
Conveyor Speeds Handling

Synthetics Finishing Co., Philadelphia, Pa., solved its inter-floor transportation problem with a conveyor system adapted to handle ordinary cloth trucks.

Management went to Wehle Conveyor Co., who designed and built the equipment to work without an operator. The only modification needed on Synthetic's trucks is a catch plate that engages the teeth of the conveyor.

The trucks are loaded with goods in the receiving department and pushed to the conveyor, which engages the center plate of the truck and takes it to the second floor.

When empty trucks accumulate upstairs, the conveyor is reversed and the trucks are returned for more goods. A 2-hp. motor is adequate to handle two loaded trucks at a time.



New Economies in Flat-Belt Operation

Tanastic, the nylon core leather belting by Rhoads, makes no maintenance demands. Will not slip because it is stretch-free. Maintains tension, runs straight and true. Tanastic starts up without slipping, and runs at highest speeds required in mill operation.

Ask a Rhoads belt-drive engineer about Tanastic nylon core leather belting, Texalon nylon core synthetic belting, or famous Rhoads Tannate leather belting. Literature on request. Address Engineering Department, J. E. Rhoads & Sons, Wilmington 99, Delaware.

RHOADS

Established 1702 . . . Pioneers in Mechanical Power Transmission

CIRCLE 107 ON READER SERVICE CARD

Some things don't turn over fast...

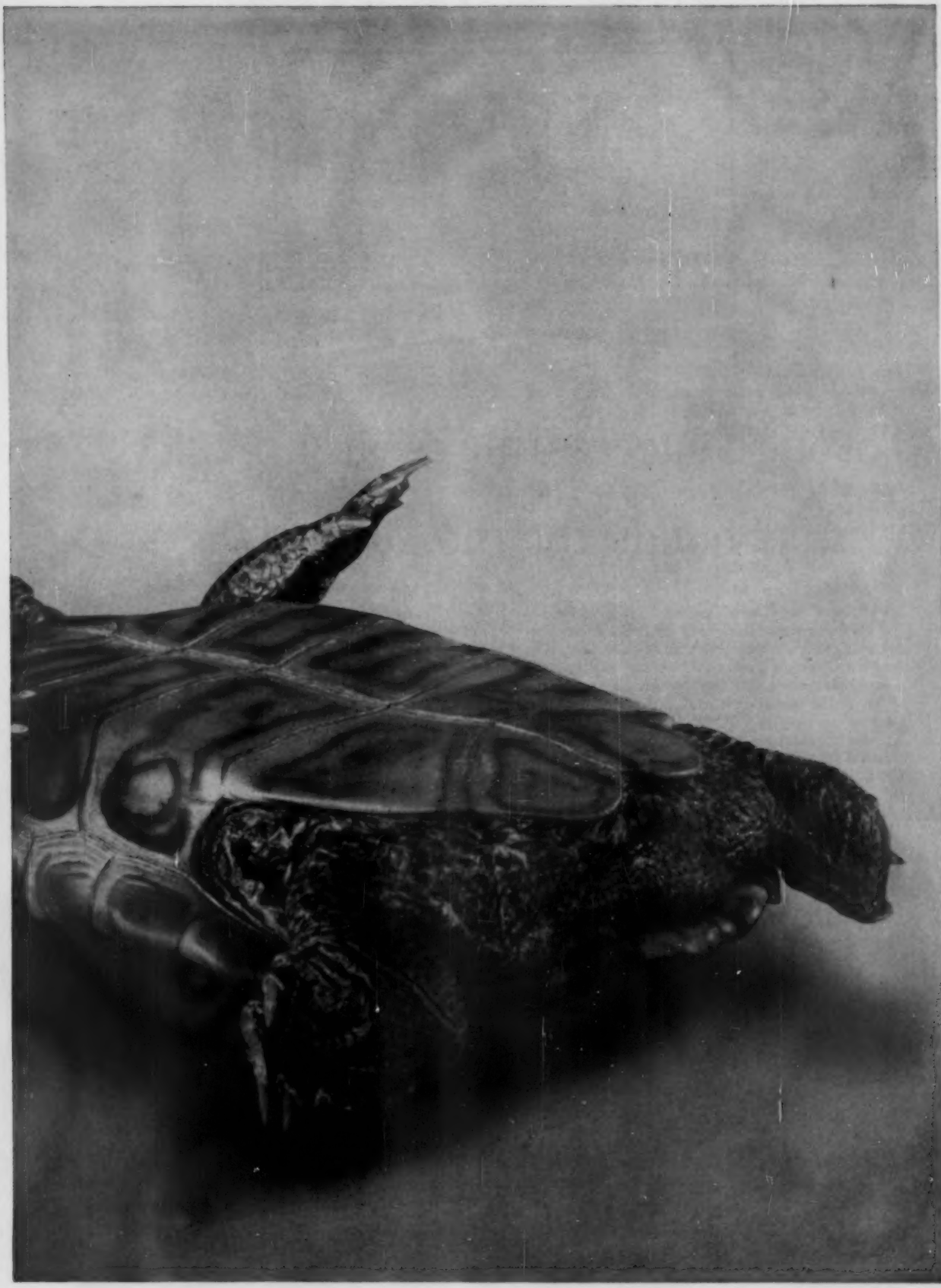
Some merchandise just stays put, getting older and older. Earning no profit at all . . . Smart businessmen know how to cut the turnover risks. They know that Du Pont fiber trademarks can help goods move fast. That's because these are the best-known, most-trusted modern fibers in the world, bar none. They're miles ahead in consumer preference. (Fact: 2 to 1, men in a recent survey preferred a jacket identified as Du Pont nylon over a jacket of the same brand identified as nylon.)...And a hard-hitting, far-reaching advertising program, including "THE DU PONT SHOW WITH JUNE ALLYSON", keeps building this preference...That's why it pays to feature Du Pont fibers in your ads, on your labels and in your selling plans.

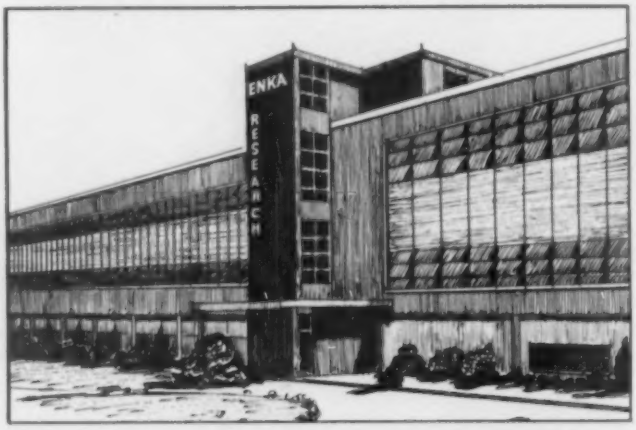
DU PONT
NYLON "ORLON"®* "DACRON"®
ACRYLIC FIBER POLYESTER FIBER
...GIVE YOU A SELLING EDGE!

DU PONT BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY
REG. U.S. PAT. OFF.

*Du Pont's registered trademark for its acrylic fiber. **Du Pont's registered trademark for its polyester fiber.

Enjoy THE DU PONT SHOW WITH JUNE ALLYSON, Monday nights on CBS-TV.





Through successful research... ENKA builds for the future!

WITHIN the walls of the Enka Research Center efforts are continuously directed toward improving Enka's yarns and fibers for a market which demands better and better quality, and developing new yarns to expand Enka's contribution to the textile industry. Through successful research, Enka is building for the future.

Here, quickly, are three major new developments from Enka research – ready to work for you...

NEW ENKA BLANC DE BLANCS™ NYLON

Now, for the first time, a truly white nylon yarn. Another "first" in the polyamid field for American Enka. Blanc de Blancs (white of whites) nylon is created by injecting the whiteness directly into the polymer . . . so that it actually becomes a part of the yarn itself. This yarn has been developed for intimate apparel fabrics and findings marketed in the greige, and for goods in special need of brilliance of white, and for goods that are not normally dyed. There has already been a strong demand for Blanc de Blancs in power net, leno and circular knit foundation garments. Blanc de Blancs nylon deniers currently being offered by Enka are: 40/8, 50/13, 70/32, 100/32, 140/64 and 200/32.

HYDROWARP PIRN for ENKA NYLON

Another step by American Enka to help maintain competitive nylon sales: a new four-pound 13 in. pirn. This new hydrowarp pirn increases net yarn weight per pirn, improves unwinding tensions of the yarn, and reduces operating costs in your mills.

NEW BRIGHT LUSTER STAPLE for ENKA RAYON STAPLE

This new American Enka development has been designed particularly for use in chenille bedspreads, both tufted and woven. In addition to its outstanding processing qualities, this fiber also facilitates the production of chenille bedspreads, exhibiting excellent resilience and bloom.

Whatever your needs in modern yarns and fibers, look to American Enka...for Enka research creates new opportunities for *YOU*.

So many good things begin with

ENKA

American ENKA Corporation, Enka, N.C. • Producer of nylon • rayon • yarns • fibers

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What's new this month in . . .

Fibers, Yarns, and Fabrics

Here's Zefran Again

Dow Chemical Co. has developed a new type of Zefran acrylic staple fiber slated for use on the cotton system. Dow has named the new fiber C-1.

The new staple will be of uniform length and will be a bland of deniers. The average size is 2 denier.

Commercial production is expected to start sometime this month.

Space-Dyed Carpet

Croft Carpet Mills, Inc., has introduced a new carpet, Gold Coast, to its textured Caprolan line.

The textured-nylon yarns are treated by a newly developed space-dyeing technique.

The carpet is tufted in a high-low loop pile. Each tuft is multicolored —producing the bulky variegated look of a hand-loomed frabric.

Gold Coast retails at about $12 a square yard.

Knits for Spring

Allen Knitting Mills is featuring subdued surface effects in its new acrylic-fiber knit fabrics for spring 1961.

The company is also showing a line of lacey raschel fabric for men's and boy's spring shirts. Many of the new patterns are available in a 50-50 Acrilan-Corval blend.

Colors stressed in the new line are bronzes, vintage shades, greens with a loden cast, and blues.

Du Pont Gets Patent

Du Pont has been issued Patent 2,939,201, covering production of man-made fibers having a tri-lobal cross section.

The company's first fiber of this construction appeared on the market commercially in 1959. Four of the company's products now in commercial products covered by the patent are: Antron Type 560 nylon, used in apparel; Type 90 nylon, used principally in tricot and hosiery; Type 501 nylon, used in rugs and carpets; and Dacro Type 62 polyester fiber, used widely in women's blouses, dresses, and sportswear.

Soon—All You Want

It's in tight supply now, but production will soon be increased.

We're talking about Du Pont new textured-filament nylon called Antron 24 slated for use in frieze upholstery fabrics. This is Du Pont fifth commercial product covered by its tri-lobal cross-section patent.

Lighter-weight and higher-performance fabrics can be made with this yarn because of the yarn's greater covering power. Current production is in 1300 denier.

A Colorless Third

One-third of the homemakers in America have never bought colored sheets. This fact is one of the many findings revealed by a nationwide consumer survey conducted by the Vat Dye Institute.

The Institute's purpose for this survey was to show how American women feel about the use of color in the domestic products they buy. The results are offered at no charge to the domestic industry.

What were some of the other findings? With color-conscious consumers, pink fell into first place, followed by blue, yellow, green, and lavender. The last color, lavender, is a newcomer to the top colors in the domestic domain. Its position is due to its success in other home-furnishing areas.

The Institute's survey also revealed that most women do not know what the term "fast" or "vat" color means, and think colored bedclothes will tend to fade, run, or bleach out in the wash.

The Institute summed up its survey and came to this conclusion: The first step in convincing women of the decorative and fashion values of colored sheets is to let them know that vat-dyed sheets are color fast and wash as clean as white sheets.

What Fortrel Costs

Celanese Fibers Co. has announced prices of its new Fortrel polyester staple fiber and tow.

Fortrel staple fiber prices are: $1.26 per pound for 1.5 denier; $1.36 for 3 denier, and $1.31 each for 4.5 denier and 6 denier. Staple lengths of 1½ inches, 2 inches and 3 inches are available. Fortrel tow is priced at: $1.36 each for 1.5 denier and 3 denier and $1.31 each for 4.5 and 6 denier.

All fibers are produced with a semidull luster. The staple is packed in 500-lb. bales. The tow is packed in cartons weighing from 300 to 400 pounds.

Now—Lighter Covers

Reeves Brothers Inc., has introduced Coverlight-V a new lightweight vinyl-coated nylon material aimed for use in industrial covers.

The new material is offered in 6-, 10½-, and 12-oz. weights. The standard width is 56 inches. Colors available include red, yellow, green, white, and olive drab.

Creslan Uses Grow

Creslan acrylic fiber is the subject of a development program by American Cyanamid Co. in conjunction with nonwoven manufacturers.

The program will cover applications in apparel, industrial and home-furnishings fields.

Specific applications under consideration include upholstery backing and bottoming material, high-stability felts and filters, wicks, interlinings, high-temperature bearing seals, and wet- and dry-filtration applications.

. . . Turn the page

'59 Tops All

World production of man-made fibers in 1959 reached a record level of 7,010,000,000 pounds according to the TEXTILE ORGANON.

This total was composed of 5,560,000,000 pounds of rayon and acetate, 1,268,000,000 pounds of noncellulosic, and 182,000,000 pounds of glass fiber.

Current production capacity is reported at 9,527,000,000 pounds of all man-made fibers with an expected increase to 10,593,000,000 by 1961.

Vycron Tops Markets

Vycron, new polyester fiber—the end result of combined efforts of Goodyear Tire & Rubber Co. and Beaunit Mills—is now available in wash-and-wear summer suits and other wearing apparel.

More than 20 clothing manufacturers are making garments from blends of Vycron and cotton, rayon, wool, nylon, and other man-made fibers.

Another new market for Vycron is also in sight. The companies are developing specially processed yarns aimed for use in upholstery and other decorative fabrics, and industrial fabrics.

Clear—Strong, Too

Du Pont has introduced a new high-clarity, high-strength polyethylene packaging film. Commercial production started in June at Richmond, Va. When in full operations the plant will produce in excess of 30-million pounds per year.

The film is currently being marketed for use on bag-making and make-and-fill equipment only. It is available 100-, 125-, 150-, and 200-gage thicknesses. The fiber is also furnished in medium- and high-slip form with each degree of slip offered in two types: untreated and treated on one side for printing.

Tomorrow's Tires

What will tires of the future be like? Goodyear Tire & Rubber is attempting to find out. The company is testing five man-made fibers for performance and wear.

The fibers used fall into three general categories: polyester, polyvinyl, and polyamide.

Goodyear is studying Vycron, Terylene, and Dacron in the polyester group. Vinal is under study in the polyvinyl group. HT-1 and nylon share the polyamide group. One of the assets of the HT-1 fiber is its melting point of 600 F.

News from Sweden

Svenska Rayon Ab, a Swedish company, is producing a new modified cellulosic staple fiber called Elaston. End product: Padding and quilting.

Elaston fiber has a high permanent-type crimp. It is water repellent and washable with normal detergents at a temperature of about 100 to 125 F.

Carding or garnetting of Elaston requires care. A light setting of the rollers is necessary.

Talbott's Sweaters

Talbott Knitting Mills has treated its entire fall fur-fiber sweaters with Retain, a Dow Corning silicone.

Styles include cardigans and pullovers with dressmaker details, solids or two-tone combinations, a design by De Givenchy, and a Chanel adaptation.

Flowers All Over

Pepperell Mfg. Co. introduced this month its Floral Quartette collection in percale. This collection is a feature in the Lady Pepperell line.

Four patterns are included in the group. Each pattern has a single dominant color in a floral design on a white group: Pink poppies are shown, yellow buttercups, orchid irises, and blue Shasta daisies.

All four have color-coordinated, solid-pastel sheets and blankets.

New Fall Models

Canterbury Knitters Ltd. has introduced its fall full-fashioned sweaters with a hidden quality.

Ermileur, a 17% lamb's wool and 25% fur-fiber blend, is permanently protected against moth damage with Mitin.

One model, a bulky rib wing collar style, is available in camel, chamois gold, violet, chalk blue, and teal. It retails at about $11. Another Mitin-treated model, retails at about $12. The style of this model is fashioned along cardigan lines with a convertible stove-pipe collar.

Keeps Heat Out

Baxter, Kelly & Faust, Inc., Safety Fabrics Div., has developed a process for impregnating any textile material or fabric with aluminum.

Following treatment, the fabric retains its original strength, texture, design, and flexibility. The treated fabric is also heat resistant up to 2500 F. The aluminum coating prevents 96 per cent of heat from penetrating the materials, according to tests made by the United States Testing Co.

The finish can be applied to one or both sides giving it an aluminum color or any other color desired, yet retaining the original texture.

Applications for the new treated materials include consumer and industrial products—from barbeque mitts to curtains for industrial furnaces.

Label Comes Clean

Avery Label Co. has introduced a removable label of rayon and acetate called Kum-Kleen.

The new label grips firmly to many types of surfaces—leather, wood, rubber, metal, glass, paper, clothing, and other soft goods.

Hang Tag Survey

Tag Mfg. Institute conducted a survey to determine what portion of the hang tag and its printed information achieved the most lasting impression on shoppers. Women who bought dresses knew more about fiber content and the garment manufacturer than those women who were just shopping.

The survey showed that the purchasers remembered fiber content, care information, Sanforized and manufacturer most frequently in this order. While shoppers remembered only fiber content and care information.

AVISCO.

"THERE'S AN AVISCO RAYON STAPLE FOR EVERY TEXTILE NEED"

The increasing variety of types, deniers, lusters and lengths of Avisco rayon staple is carefully engineered to fit the most exacting requirement of the textile designer. Static-free, moth and mildew-resistant, and virtually lint-free, rayon will readily accept a wider range of colors than any other fiber. Here the basic types of Avisco rayon staple are listed with their specialized characteristics.

TYPE	CROSS-SECTION OF FIBER	PROPERTIES	END USES
REGULAR RAYON		Truly the basic fiber of the rayon industry, it gives fabric soft hand and luster. Can be used alone or in blends. Its high moisture absorption makes it ideal for blending with the synthetics.	Uses for regular rayon are legion. It is by all odds the most popular fiber of the apparel industry.
CRIMP		This rayon is modified chemically to produce a permanent crimp which creates a lofty, wool-like hand in fabrics.	Tufted products and brushed fabrics. Also widespread uses in upholstery, apparel, automotive and nonwoven fabrics.
SMOOTH (SUPER L*)		A smooth, long-wearing, soil-resistant carpet fiber, easily blended with wool, nylon or acrylics. Easily cleaned.	Super L is specifically a carpet fiber used in both looped and cut pile fabrics, tufted or woven.
V-22 INTERMEDIATE STRENGTH		Similar to regular rayon staple in nearly every respect, except that it is stronger.	Industrial fabrics and sheer apparel fabrics.
XL (AVRON*)		Very high strength. Adaptable to many finishes. Stronger after wash and wear treatment than cotton. In fabrics, XL has a soft, luxurious hand and an even appearance.	The strength of XL is such that it is the choice of the rayons for industrial uses such as belting. In addition it has broad application in apparel, drapery, upholstery and other home furnishings fabrics.
FIBER 40 (AVRIL*)		A permanently stable rayon fiber, similar to cotton in strength and elongation. Can be mercerized and Sanforized.	Knit or woven fabrics where stability is a requirement. Ideal in drapery warps. Wide application in apparel fabrics, either 100% or in blends.

TYPE	CROSS-SECTION OF FIBER	PROPERTIES	END USES
HS-100 (AVLIN*)		Creates a firm linen-like hand, due to its ability to interweave tightly with itself or other fibers. Shows unusually high luster.	Apparel fabrics, in blends with synthetic and natural fibers.
HS-101		A rayon staple fiber with exceptional self-bonding characteristics.	Various specialty papers and nonwoven fabrics.
SHORT CUT		This is essentially a mechanical development to produce fibers of ½" or less in length —using any of the Avisco fibers.	Used principally in specialty paper and nonwoven fabrics, and in reinforcing foams and rubber.
COLORSPUN		Colorspun is a solution-dyed fiber noted for its colorfastness and brilliance of colors. Colorspun fibers can be blended to produce at a low cost a wide range of colors from a small selected group of basic colors.	Used in wide variety of apparel and home furnishing applications, particularly draperies, upholstery and carpets.
MEDICAL STAPLES		The uniformity, cleanliness and absorbency of these rayons plus their high whiteness commend these fibers to the medical profession.	Absorbent balls, bandages, padding sponges, surgical dressings, wipers, gauze, masks, personal products.

*Trademark of American Viscose Corporation

AVISCO

RAYON • ACETATE • CELLOPHANE

AMERICAN VISCOSE CORPORATION 350 Fifth Avenue, New York 1, N.Y.

CIRCLE 113 ON READER SERVICE CARD

The reason is performance . . . not promise. All the way down the line from spinning to weaving to cutters to consumers Creslan is growing in popularity . . . moving steadily into well known lines of quality merchandise. There's good news for you, too, in Creslan. Learn about its many important advantages. Send for our TECHNICAL DATA BULLETIN. Creslan acrylic fiber is a product of American Cyanamid Company, Fibers Division, New York. CYANAMID

Offices: 111 West 40th Street, New York; 3333 Wilkinson Blvd., Charlotte, N. C.; 2300 South Eastern Avenue, Los Angeles, Cal.; 40 Fountain Street, Providence, R. I.

FIND OUT WHY MORE & MORE MILLS ARE USING

Creslan®

ACRYLIC FIBER

THE NEWEST OF THE ACRYLICS

NEWS ABOUT MILLS

Abney Mills, Greenwood, S. C. recently launched a $5 to 6-million machinery-modernization program. Most of the new equipment will be installed at the Belton and Anderson, S. C., print-cloth plants. Completion of the installation is scheduled for late summer.

Agawam Dye Works, Lawrence, Mass. has bought the assets and equipment of Putnam Dye Works in Putnam, Conn. All the machinery will be moved to Agawam's affiliate, Thies Dyeing Mills, West Warwick, R. I.

Bates Mfg. Co., Lewiston, Me. have bought a number of new wide Draper looms for installation at the Hill Div. plant in Lewiston, Me. Bates's modernization program now totals $800,000 for the year.

Burlington Industries, Inc., Greensboro, S. C. has announced the closing of its High Point Weaving Plant. Foreign imports of worsted fabrics is given as the reason for ceasing operations. Orderly running out of goods in process will begin immediately and all equipment will be disposed of when production ceases.

Cannon Mills Co., Kannapolis, N. C. has started building a 43,000-sq.-ft. building for its yarn-dyeing facilities. This new building provides for future expansion while permitting a better layout for present yarn-dyeing operations.

Covington Fabrics Corp., New York, N. Y. is planning to set up a mill to produce drapery and upholstery fabrics.

Dawn Fabrics, Inc., Westerly, R. I. is to be acquired by Warner Brothers of Bridgeport. No change of operating personnel or policies is contemplated. Official transfer of ownership is expected this month.

Dominion Textile Co., Montreal, Que. has announced a large modernization program. The five-year program covers expenditures of $27-million equaling a like amount expended in the past five years.

Earl-Craft Inc., New York, N. Y. has been formed as an affiliate of N. Erlanger, Blumgard & Co., Inc. The new firm will manufacture knitted fabrics for the ladies' dress and sportswear field.

Fair Lawn Finishing Co., Fair Lawn, N. J. has been bought by Fabrex Corp. for an estimated $1-million in cash.

Hanes Hosiery Mills Co., Winston-Salem, N. C. will construct a $1-million seamless-hosiery plant in Toronto, Ont. Construction will begin early in 1961. The Canadian unit is the first step in the company's foreign manufacturing-expansion program.

Kayby Hosiery Mill, Thomasville, N. C., announced plans for an 80x140-ft. addition. Initially the addition will be used for warehouse space permitting expansion of production in present facilities.

The Kendall Co., Boston, Mass., has announced the merger of American Bleached Goods Co. effective July 1. The American Bleached Goods Department of The Kendall Co. will continue their business operation at 401 Fifth Ave., New York, N. Y. No exchange of stock was involved in the transaction.

Wm. G. Leininger Knitting Co., Mohnton, Pa., started a $100,000 expansion and renovation of its Wilton plant. The U-shaped building covering 27,000 square feet was designed to improve handling and production operations.

Lockport Felt Co., Newfane, N. Y., expects to complete construction of its new $530,000 plant by September. An unusual construction feature is the placement of the boilers above the plant in a mezzanine. Modernization of existing plants include the expenditure of $100,000 for new yarn equipment.

Mexica Textile Mills, Mexica, Tex., has been sold to Lone Star Textiles, Inc., of Houston, Tex., for an undisclosed amount. The new owners have announced plans to modernize and expand the present plant facilities.

Meyer Mills, Lincolnton, N. C., will open its second million-dollar-plus plant within the year. Operations in the new 150,000-sq.-ft. building will begin with 125 persons and expand to 300 persons in three to five years. Reportedly, finishing operations will occupy the new facilities.

Phoenix Dye Works, Chicago, Ill., nears completion of a 150x250-ft. building at their Cleveland, Ohio, facilities. The $250,000 expansion, doubling present facilities, will house much of the equipment and personnel of the company's Chicago operation which is being closed.

Schlegel Mfg. Co., Rochester, N. Y., will build a 55,000-sq.-ft. plant at Chester, S. C. Operations are expected to begin in October with the production of a variety of narrow-loom industrial fabrics.

Woodside Mills, Inc., Greenville, S. C. announced a $4-million expansion program at Anderson, S. C.; Liberty, S. C.; and Norris Cotton Mills, Cateechee, S. C. Production capacity at each plant will be increased at least 25% and 100 employees will be added.

Wyandotte Worsted Co., Waterville, Me., will open a 20,000 sq.-ft. section of the former Maine Alpace Mill at Springvale, Me. The expansion was required to handle an overflow of work from the company's three other plants.

"THE NEW CARRIER ROTASPRAY SYSTEM HAS REVOLUTIONIZED OUR TEXTILE AIR CONDITIONING"

HARRY BARBREY
Group Engineer, Woodside Mills
Greenville, S. C.

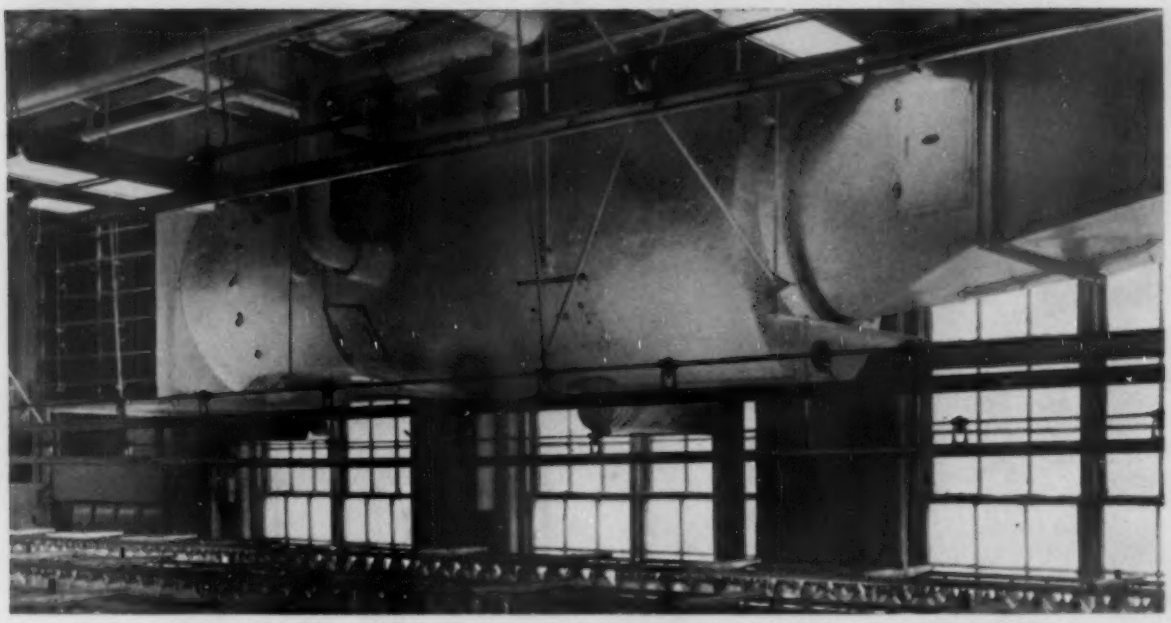
"In view of the highly competitive market in which textile manufacturers operate, we have always been alert to adopt modern methods and machinery that would decrease costs and improve the quality and output of our products," says Harry Barbrey. "A vital part of our long-range modernization program has involved replacements and additions to our extensive air conditioning systems. It was in this phase of our operation that we first investigated the Carrier Rotaspray Weathermaker System.

"This system, specifically designed for textile mills, requires no costly apparatus towers or equipment room construction. Rotaspray units operate with high-velocity air and therefore require only one-third of the space of conventional air treating apparatus of equal capacity. Since the units can be ceiling suspended, located on the roof or on an outside wall, valuable floor space is saved. These and other features made it possible for us to rapidly update our long-range plans with better air conditioning at lower initial cost.

"Now, with months of operating experience behind us at several plants, we find that we are obtaining more precise control with far less maintenance expense. Rotaspray Systems are now in operation at our Greenville, Easley and Simpsonville plants, and another is being installed at our Haynsworth plant in Anderson. In our opinion, the Rotaspray System has revolutionized our concept of textile air conditioning."

• • •

Woodside Mills is just one of many repeat customers now benefiting from this revolutionary new air conditioning concept. What savings can the Rotaspray System effect for you? That depends on the size and layout of your plant. For information, write Machinery and Systems Division, Carrier Corporation, Syracuse 1, New York.



Close-up of ceiling-suspended, stainless-steel Rotaspray unit, one of six serving over 54,000 sq. ft. of cotton-spinning floor area at Woodside. With a Rotaspray System, each department "dials" the temperature and humidity wanted.

ONLY CARRIER ROTASPRAY OFFERS THESE 7 MAJOR ADVANTAGES

1. Reduces cleaning and maintenance costs as much as 80% because units are self-cleaning, constructed of stainless steel and require no painting. For example, at Woodside Mills the cost of Rotaspray maintenance is only ¼ as much as previous systems.

2. Eliminates many system components—no water strainer, no water pump, no water tanks, no city water and drain piping, no apparatus room and no floor drains are needed at the units. These functions, including water treatment, are handled from a central point.

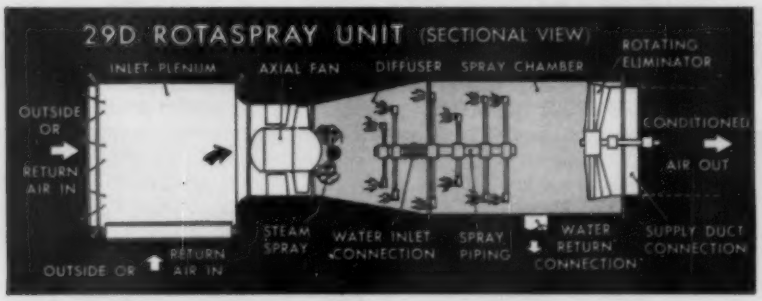
3. Needs no air filters—instead of trying to keep dirt and lint particles out as conventional systems do, Rotaspray draws them in, separates them from the air and returns them to a central point for automatic collection and disposal.

4. Improved temperature and humidity control eliminates dew point control and its problems. Within Rotaspray System capacity, departments simply "dial" the temperature and humidity required.

5. Constant air supply insures uniform temperature and humidity throughout the space at all seasons, yet with lower operating costs than conventional "volume-control" systems.

6. Eliminates "compromise" temperatures—maintains exact conditions everywhere. One area is not dependent on another.

7. Provides more at a competitive price—though individual plant conditions vary, on the average you pay no more for a Rotaspray System than for conventional good quality systems. And you get a lot more back in efficiency, economy of operation and maintenance savings.

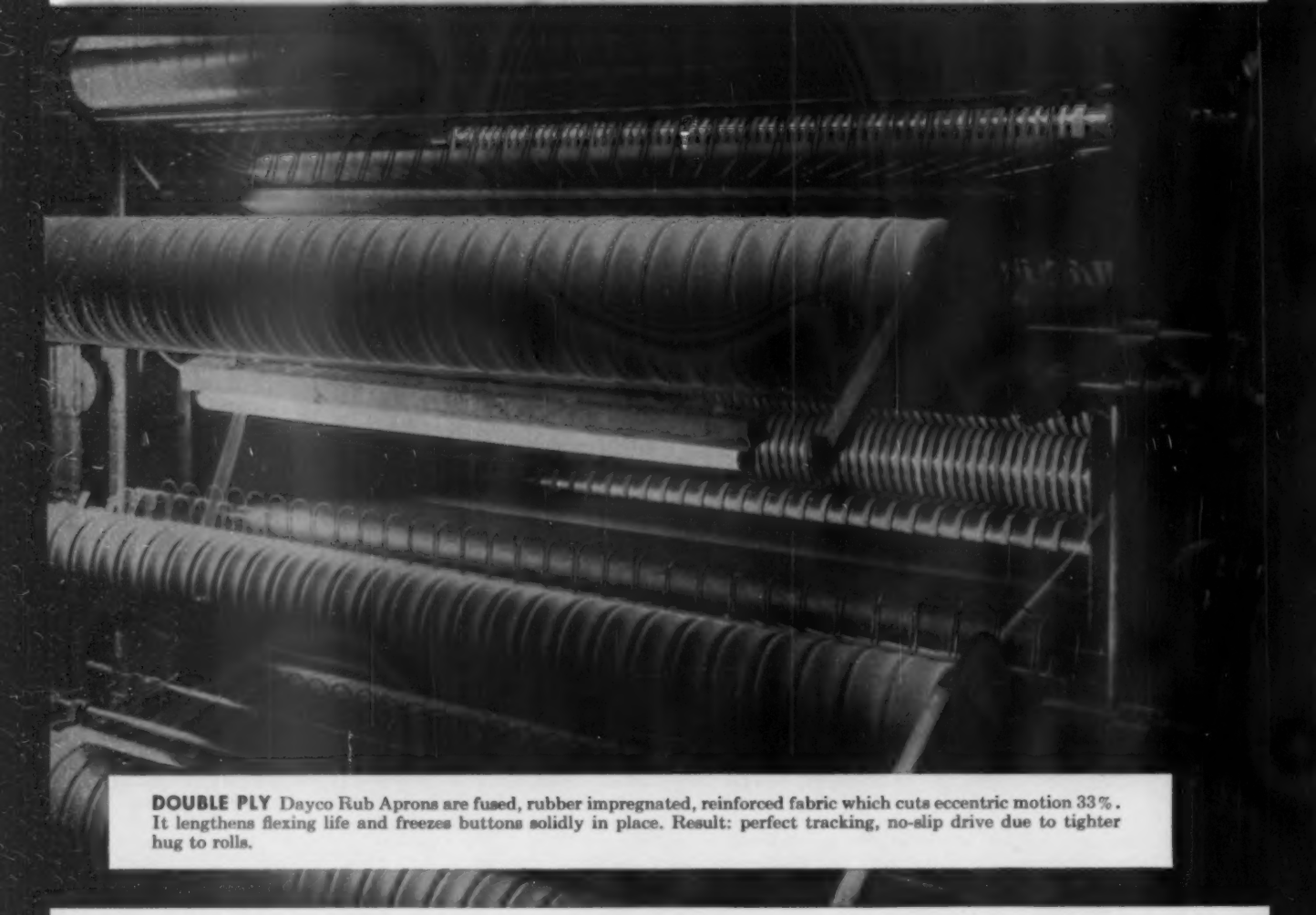


Cycle of operation: A specially designed, vaneaxial fan discharges a controlled mixture of outside and return air into a spray chamber where finely divided spray water treats the air and cleans it of lint and other air-borne particles. An exclusive high-velocity rotating eliminator then removes all entrained water particles from the air stream before it passes through ductwork to the conditioned space.

BETTER AIR CONDITIONING FOR EVERYBODY EVERYWHERE

Carrier

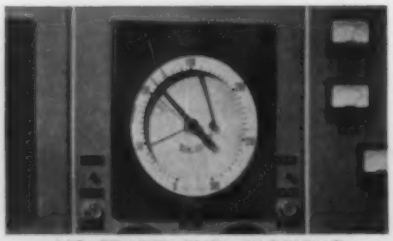
CIRCLE 117 ON READER SERVICE CARD



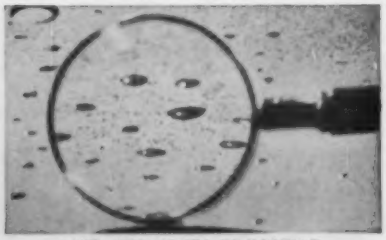
DOUBLE PLY Dayco Rub Aprons are fused, rubber impregnated, reinforced fabric which cuts eccentric motion 33%. It lengthens flexing life and freezes buttons solidly in place. Result: perfect tracking, no-slip drive due to tighter hug to rolls.

DELIVERS 33% MORE YARN UNIFORMITY.....

IMMUNE TO EMULSION OILS



NO TEMPERATURE PROBLEMS



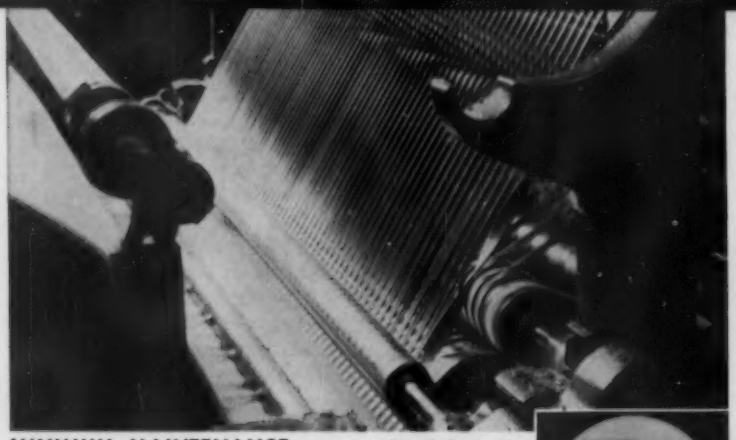
NO HUMIDITY PROBLEMS

REINFORCED FOR BETTER TRACKING

NO WOOL PIGMENT ABSORPTION

NO GLAZING, NO SLICKING

NO SWELL with Dayco Rub Aprons. Their special formulated texture keeps them free of emulsion oils that cause growths and rubbing surface breakdowns on ordinary aprons. Temperature and humidity changes have no effect on the Dayco Rub Apron. Color pigments from dyed wool are not absorbed . . . slicking and glazing are reduced to a negligible minimum.



MINIMUM MAINTENANCE, top card efficiency, better web uniformity are yours with Dayco Endless Condenser Tapes. Precision compounding prevents stretch and cracking, reduces take-ups and groove-jumping. Oil deterioration, static are eliminated. The permanent square edge permits close-tolerance nesting for cleaner cuts and minimum stealing. They're longer lasting—yet original cost is lower.

HIGHEST COEFFICIENT OF FRICTION of any apron on the market. That is the important difference in this remarkable Dayco Rub Apron. It means proper yarn condensing and more high quality yarn per machine. Because the surface keeps renewing itself, you also get longer life with heavy-duty Dayco Rub Aprons.

. . PLUS MORE YARN PER CARD

with DAYCO RUB APRONS

Here with Dayco Rub Aprons is a range of special built-in textures answering all the individual rub needs of any mill. Each has the highest coefficient of friction of any apron available today. Each is so designed and formulated that it maintains its condensing efficiency unchanged through its lifetime of use.

The unique advanced 2-ply construction minimizes need for adjustments, delivers longer trouble-free service, requires less maintenance, no downtime.

Look for more yarn per card and 33% greater yarn uniformity with cards equipped with Dayco Rub Aprons—thanks to Dayton's exclusive surface texture that stays good from the first day of use without change.

Ask your Dayco Representative to set up a trial installation. Phone or write Dayco Textile Products Co. (Formerly Dayton Rubber Co., Textile Division) 401 S. C. National Bank Bldg., Greenville, S. C.

Dayco TEXTILE PRODUCTS CO.

Dayco

Division of Dayco Corporation

OVERSEAS PLANT: THE DAYTON RUBBER CO. LTD., DUNDEE, SCOTLAND

Reasons behind the fast-growing trend to DAYCO SYNTHETIC CONDENSER TAPES

THE SUCCESS of Dayco synthetics in cots and aprons, loop pickers and lug straps is also effecting a big change in the use of conventional condenser tapes. "Leather men are weather men" they say because the expert can look at a piece of leather and tell you whether the animal from which it came had a dry year. This legend is the clue to the growing acceptance of Dayco synthetic condenser tapes, bringing as they do, an end to the constant humidity and weather problem.

But the Dayco synthetic condenser tapes are earning a great deal more attention for other good and practical reasons. One is the fact that Dayton, for instance, can now make them to closer tolerances. This means a remarkable precision fit in the steel roller grooves.

The Dayton Endless Condenser Tape besides possessing very close-tolerance, non-permanent stretch has a permanent square edge to eliminate groove-jumping, twisting and turn-over.

These Dayco condenser tapes have ended oiling maintenance problems and costs and the nuisance of oil deterioration.

The reason Dayton Endless Condenser Tapes last longer, yet cost less, is a small consideration compared to the really big reason for the switch to Dayco tapes. Top card efficiency, better web uniformity, cleaner cutting, minimum stealing are the real reasons.

CIRCLE 119 ON READER SERVICE CARD

NEW LITERATURE

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

Textile Machinery and Auxiliary Equipment

L-1—MagneDraft spinning is compared to conventional weighed systems in new 6-p. bulletin. Literature, illustrations show MagneDraft features: fewer component parts, improved quality, no lubrication, less parts to clean. Saco-Lowell Shops

L-2—Textile receptacles of vulcanized fiber are described in a new 6-p. bulletin. Photos include roving cans, tote boxes, trays, and trucks. Graphs indicate sizes available and literature lists features. National Vulcanized Fibre Co.

L-3—Testing equipment and engineering services are illustrated and described in 16-p. Catalog No. 60. Production control, research, and testers are described, listing standard tests. Custom Scientific Instruments, Inc.

L-4—Quality control and research are described in a 24-p. booklet. Charts show research expenditures, rate of return, and proportion of companies supporting research. Scientific Apparatus Analysers Assn.

L-5—Silk - screen catalog of 225 pages covers every phase of the screen-process field. Included are printed circuits, high-speed screen printers, continuous-flow auto jet and auto rack dryers. Advance Process Supply Co.

L-6—Textile production is dramatized in a 25-minute color film. Revolutionary high-speed film shows what happens inside textile machines. Shuttles and bobbins are slowed down while operating. Products are also shown. Burlington Industries

L-7—Starch homogenizers and rotary slasher pumps are described in 4-p. Bulletin A1-750. Principal of rotary pump and construction are illustrated. Features are listed and chart showing pump capacities are included. Creamery Package Mfg. Co.

L-8—Cooling-tower life data is available in new 2-p. bulletin. Chemical and biological attack and physical deterioration of wood towers are described. Control of these deteriorations are explained. Betz Laboratories, Inc.

L-9—Industrial water problems from pretreatment to waste disposal are described in 24-p. brochure. Chart on chemical composition on water supplies, case histories, and bibliography of technical literature are included. Hall Laboratories

L-10—Immersion heating and cooling coils are described in new 2-p. technical bulletin M-11. Illustrated are various types of standard and double-embossed Panelcoil. Economical heating and cooling systems are described. Dean Products

Chemicals and Supplies

L-11—Sodium aluminate as water-treatment chemical is described in new 12-p. Bulletin K-4. Chemical analysis, x-ray diffraction, photographs, and solubility rate graph are included with list of applications. Nalco Chemical Co.

L-12—Sulfated oils for industrial uses are described in a new booklet, Gen-4. This series of products are described as true oils dispersable in water. Uses as emulsifiers for insoluble organic compounds are described. Nopco Chemical Co.

L-13—Warp sizes of Kofirm starches are described in 64-p. manual. Details on handling, applications, formulations and production are described. Physical properties, charts, and glossary of terms are included. National Starch & Chemical Co.

L-14—Ammonium chloride as a fabric conditioner is described in new 8-p. bulletin. Data shows chemical properties, applications, and toxicity. Included is chart on solubility, and specific formulations. Armour Industrial Chemical Co.

L-15—Viscous-type scour brochure of applications is now available. Effective use on various fibers is detailed. Desirable features and foaming properties on package machines, jigs and Burlington units are described. W. F. Fancourt Co.

L-16—Dyeing Synthetic Fibers, a new 86-p. booklet, devotes a full chapter to each fiber commercially available. Details on types of dyes and practical applications are covered. General Aniline & Film Corp.

L-17—Adhesives, a 4-p. bulletin, illustrates adhesives and their advantages. Principal uses and representative formulations are grouped in a table. Described are types of adhesives with a list of 12 specific applications. B. B. Chemical Co.

L-18—Cationic dyestuff is described in a 4-p. Bulletin No. G-810. Descriptions of this dye, dye formulations and applications are detailed. Included are dyed fiber swatches and tables on staining, affinity, and exhaustion. General Dyestuff Co.

L-19—High-temperature coatings such as ceramic and silicone coatings are covered in this 10-p. bulletin. Applications and chart of specific coatings for temperatures ranging to 1400 F. are outlined. The Dampney Co.

L-20—Fuel Burning Systems, revised Bulletin No. 1270, illustrates some of the latest fuel-burning systems for manufacturing plants. Burner designs for oil and gas are shown and sizes up to 934 boiler horsepower are described. Orr & Sembower

Engineering

L-21—Rotary vacuum and pressure pumps are covered in a new 16-p. illustrated, descriptive price list (No. 1360) which includes latest oilless models, additional sizes and full line of accessories. Leiman Bros., Inc.

L-22—Steam traps are described and illustrated in color in Catalog FE-310, which provides detailed information about a complete line of low-cost bi-metal thermostatic and float thermostatic steam traps. Farris Engineering Corp.

L-23—Electrical adjustable-speed drives are described in two bulletins (SL-351-460 and SL-352-560). The first describes Size 1 for electrical drives up to ⅓ horsepower; the second, Size 2 for ¾-hp. drive. Cleveland Machine Controls, Inc.

L-24—Multi-shielded AC motors are described in Catalog 200. This 56-p. illustrated booklet includes complete pricing and dimensional data on motors ranging from ¼ to 200 hp. Sterling Electric Motors, Inc.

L-25—Aluminum coil, sheet, plate, tubing, pipe, rod and bar are described in technical bulletin 30-1. This 20-p. illustrated booklet also lists aluminum products including roofing, siding, thresholds, and sills. Joseph T. Ryerson & Son, Inc.

L-26—Palm-sized pH meter is described in an illustrated data sheet which shows how precise reproducable readings within ±0.02 pH accuracy are obtained and lists the features of the meter and optional equipment available. Sel-Rex Corp.

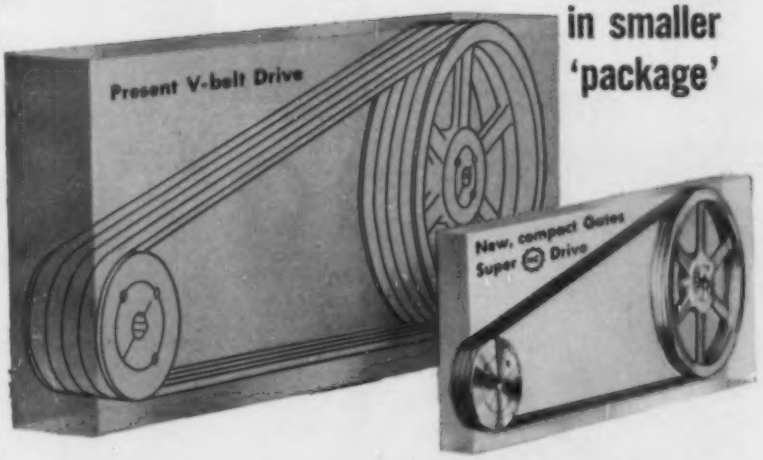
General

L-27—Wall-stretching ideas are described in a catalog containing ideas and case histories. It gives ways in which offices and factories can expand their space by eliminating aisle space. Mobile Storage Div., Dolin Metal Products, Inc.

L-28—Textile, apparel, and accessories testing are described in a 6-p. illustrated folder which covers many areas of testing, including textile chemistry and dyes, wash and wear, microscopy, and hosiery. United States Testing Co.

L-29—Techniques of how to develop a good sales manual are covered in an illustrated 12-p. booklet which covers how to begin collecting information, what to include, how to develop subjects, and how to divide work. Heinn Co.

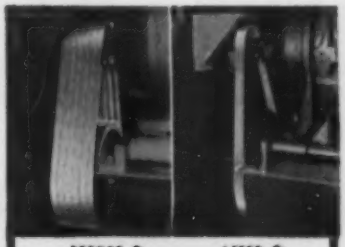
Same HP capacity in smaller 'package'



Industry cuts drive costs as much as 20% with Gates high capacity V-Belts

By putting power transmission in a smaller package, Gates 'performance-proved' Super HC V-Belt Drive has cut costs all along the line—for all kinds of industries—since its introduction more than a year ago.

As a replacement drive on equipment *inside* the plant, or as the drive on equipment *manufactured for sale* the Super HC Drive has enabled thousands of industrial users and OEM's to reduce sheave diameters 30% to 50%, overall drive space up to 50%, and drive weight 20% and more. *Initial drive cost has been cut as much as 20%.*



BEFORE ◀ AFTER ◀

COMPARE: Conventional drive at left was replaced with Gates new Super HC V-Belt Drive at right. Three of Gates new, narrow HC V-Belts do the work of the former 6 standard width belts. In this application the new drive actually takes *one-third* the space of old!

Nation-Wide Engineering Service

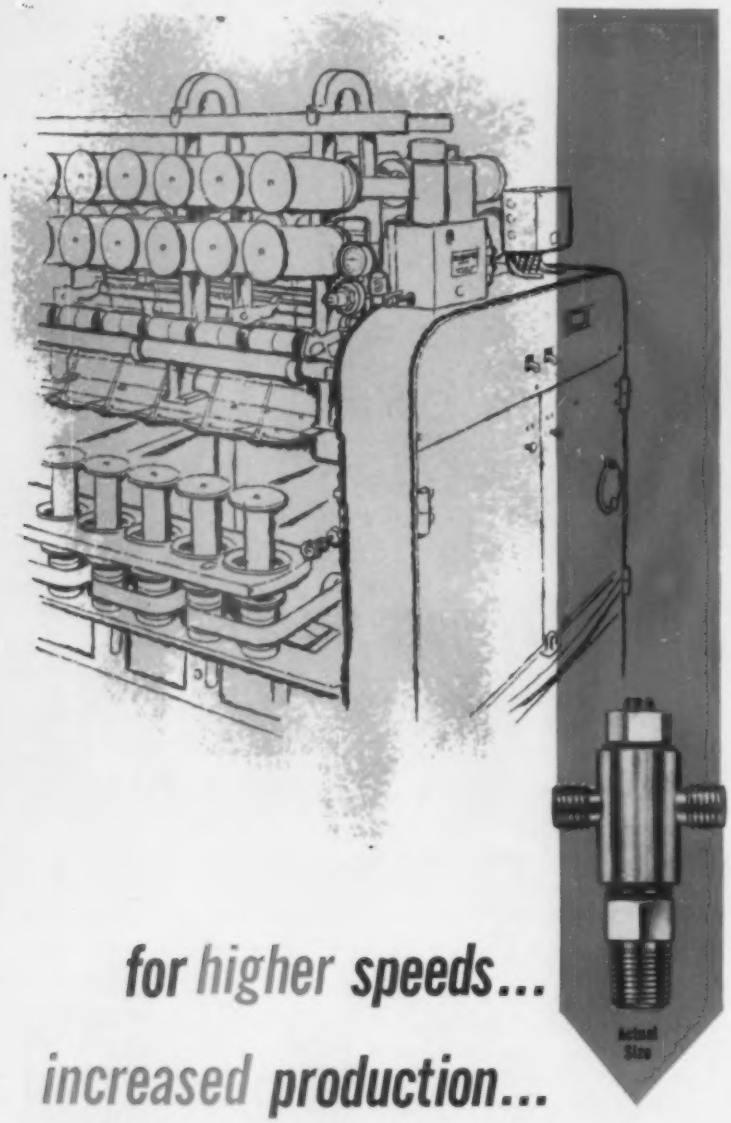
A Gates Distributor can show you how to effect savings with Super HC V-Belt Drives. Ask him for your free copy of *"The Modern Way to Design Multiple V-Belt Drives,"* or write to The Gates Rubber Company Sales Division, Inc., Denver, Colorado.

TPA 535

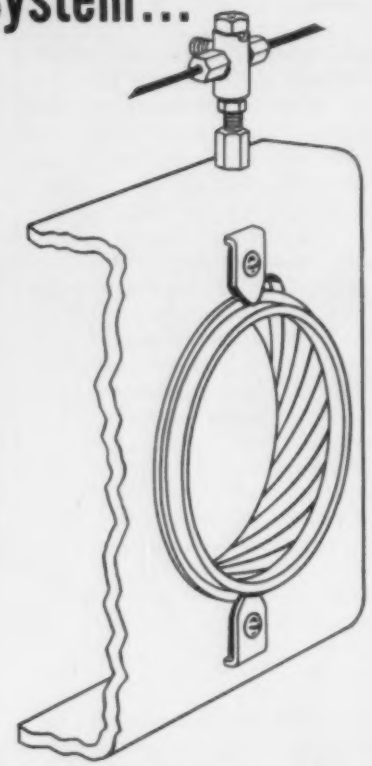
The Gates Rubber Company, Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

Gates — World's Largest Maker of V-Belts

Gates Super HC V-Belt Drives



New Adjustable Accumite® Ring Lubrication System...



for higher speeds... increased production... less product spoilage... reduced power costs!

When you order new spinning or twister frames (or just new rings), specify Alemite's new adjustable Accumite System for increased production and lower costs. This accurate, economical, low-pressure lubrication system assures automatic ring lubrication while the machine is in operation. Adjustable measuring valves meter exact amounts of refinery-clean lubricant to every ring on the frame rail.

Because an Accumite System maintains a constant, proper lubricant film, it assures even tension and uniformity of thread. It virtually eliminates product spoilage due to over lubrication – eliminates drip and spray. The Accumite System reduces lubricant consumption and prolongs ring life at higher operating speeds.

Send for all the facts on the Alemite Accumite System – important production tool of the textile industry!

Symbol of SW Excellence

ALEMITE DIVISION
STEWART-WARNER CORPORATION

Dept. X-80, 1850 Diversey Parkway, Chicago 14, Illinois

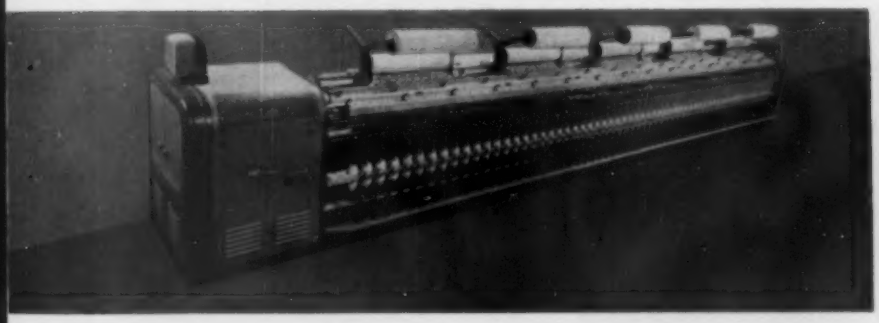
Equipment and Supply News

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to back cover.

It's New- Sliver Drafter and Leveler

A sliver leveling and drafting machine, which does in one process what is usually performed in two, has been designed by a Belgian firm, represented here by Stellamcor, Inc. The machine, called "Autocalibreur," has dual delivery, each separate from the other, so that two different lots may be processed at the same time.

The drafter's effectiveness is gained by electronic means. Thus, the entering sliver is measured by a monitoring roller and the data fed to a mechanical memory, which holds it until the measured sliver reaches the drafting zone where the necessary changes are effected by a P.I.V. gearbox. A mechanical differential acts on a hydraulic valve controlling the change gear. Variations up to 25% are levelled and the over-all draft ratio can be controlled from 7 to 10. The feed is 10 slivers, production is said to be 220 pounds per hour of two levelled slivers of 205 to 310 drams per 40 yards. The delivery speed is 90 to 130 yards per minute. **(Circle E-1 on Reader-Service Card)**



26 (Count 'em) New Features

A new ring spinning frame for producing yarn on the woolen system from jack spools designed by Davis & Furber Machine Co. is now available. The frame, known as Model H, has 26 new features.

Mechanical and electrical devices make higher speeds practical with less down time. The ballooning ring prevents yarn from slapping against separators and reduces the balloon size and mass—achieving less pull and yarn tension. Electric motor with magnetic clutch and electronic controls varies the speed as bobbin build progresses and angle of pull changes. Tension is evened out and effective speed increased. Another device reduces tension at the bite of the draft roll and below.

Model H provides 15-inch traverse on paper tubes, giving 15 to 45% more yarn area than the standard Model F. This increase results in less frequent doffing. Preventive-maintenance features keep the Model H running more hours at higher speeds. Operating personnel finds greater ease and safety in its work. **(Circle E-2 on Reader-Service Card)**

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Equipment and Supply News

Begins on page 123

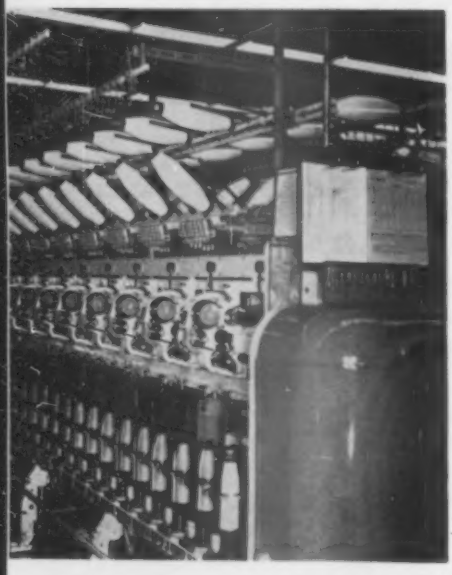
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

New Comber Ups Production

The new Whitin Super J cotton comber will boost production 20%, (output up to 63 pounds per hour), accommodate laps up to 1200 grains per yard. Can size is 16x42 inches for single or bi-coil sliver. The drawbox utilizes a four-over-five system. Five stop motions and a safety switch prevent operation without proper roll weighting.

The Super J comber is an 8-head, single-side machine. It operates at 150 nips per minute. Fringe is fed during backward motion of knife, producing high-quality sliver and permitting high speed. Nine gears operate the detaching rolls. No clutches or ratchets. One adjustment controls all eight heads. **(Circle E-3 on Reader-Service Card)**

Now—Agilon Yarns in One Step



Improved equipment for producing Agilon yarns is available from Deering Milliken Research Corp. Model 2110 handles single and plied yarns from 20 denier to 200 denier in the single end. Either stretch or bulked yarns may be produced.

The machine starts with the fiber maker's package in its creel, ends with a doffed package of yarn—oiled, twisted, ready for shipment. Model 2110 has a second heat-setting and relaxing step for more bulk at the expense of elasticity. Single-step process holds handling costs to minimum. Output may be used for circular or warp knitting as well as weaving. The firm also offers a Model 2086 machine for 15- and 100-den. monofilaments, producing only stretch yarns. **(Circle E-4 on Reader-Service Card)**

E-5—Sliver-to-yarn spinning frame works with staple up to three inches, spins any yarn count from 5s to 120s. The OM-S frame (Japan) features automatic lubrication, automatic spindle-speed regulation, automatic stop and rail-lowering motion (with doffing pilot lamp), automatic starting clutch, greater can and bobbin capacity. Elimination of roving means saving in labor, waste, power and floor space, also eliminates avoiding any defects or unevenness created at the roving frames. Edward S. Rudnick, Representatives.

E-6—Automatic doffer for spinning frames (called Treufus) will service any American spinning frame. The device is manually operated, requires no electrical connections, and is extremely mobile. Floor wheels and ball bearings make the machine very flexible. The undercarriage is hydraulically raised or lowered to meet the needs of different frames.

The doffing operation is accomplished by a series of bridge-like members that form an inclined plane. An element resembling a plow starts the lifting of the full bobbin on the spindle.

Each succeeding bridge-like member raises the bobbin higher until it is completely separated from the spindle and slides down a chute into a receiving box, which is part of the unit. Empty bobbins are fed automatically to the point of discharge, where each is released by a sensing mechanism timing the accurate placment of the empties on the spindle. A spring-loaded hammer taps the bobbin into place.

Bobbins can be doffed and replaced at a rate exceeding 18,000 per hour. But, because of the time to engage and disengage the Treufus with and from the frame and to unload doffed bobbins and replenish the supply of empty bobbins, the effective mill rate is estimated at 6,000 to 8,000 bobbins per hour. The machine is patented in the United States and in other principal countries. Willcox & Gibbs.

. . . *Turn the page*

LINDLY Yarn Inspector and Electrotense

MODEL C-2
Automatic Yarn Inspector

...The Dawn of a New Era
In Quality Control

OTHER LINDLY ELECTRONIC PRODUCTS

Automatic Yarn Inspector for manufacturers and processors of filament yarns

•

Dyna-Micro-Gage for continuous monitoring of yarns

•

Photo-Scanner for tricot knitting machines

•

Lind-Recorder for recording events of on-off or yes-no nature

The Lindly Yarn Inspector and Electrotense have brought to the textile industry an exciting new standard of precision in quality control. This combination of Lindly electronic equipment, in conjunction with standard beaming or warping machinery, permits a degree of exactness that has hitherto been unobtainable in the control of yarn quality.

The Lindly Automatic Yarn Inspector is a high-speed, ultra-sensitive photo-electric instrument for detecting defects in synthetic yarn warps. It can be set up to count defects, or to stop the warper for defect removal, or to do both — automatically.

The Electrotense with Electronic Control provides uniform tension on every end in your knitting and weaving machines by a simple turn of one dial on the electronic control panel. The Electrotense itself consists of an electromagnetic coil located beneath two conventional discs rotating on a ceramic post. When the coil is energized, the upper disc is attracted downward, creating tension on the yarn. Pulsating current prevents backup of twist and the collection of lint in the tensions.

286-6

FOSTER MACHINE COMPANY
Electronics Division, Department TW-8
Westfield, Massachusetts, U.S.A.
Southern Office:
Johnston Bldg., Charlotte, N. C.

Use the coupon to ask about these and other Lindly Electronic Products . . . . forerunners of complete automation for your mill.

FOSTER MACHINE COMPANY
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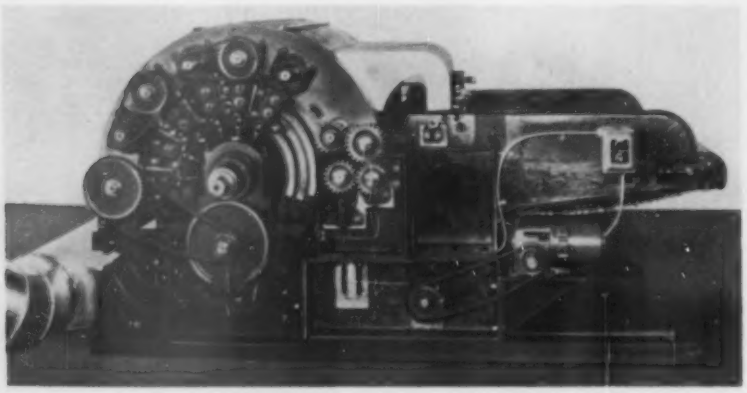
Please send me information on Lindly Electronic Products for quality control.

Name _____ Title _____
Company _____
St. & No. _____
City _____ State _____

CIRCLE 125 ON READER SERVICE CARD



E-9—New bale blender, designated Model AN, brings automated precision to the opening room. Haphazard mixing is eliminated and greater blend uniformity is assured. Bales are carried on conveyor to automatic picker finger, which removes small amounts from each bale used in the lay-down, eliminating the possiblity of short-term variations between bales. The result is improved fiber uniformity and yarn quality. James Hunter, Inc.

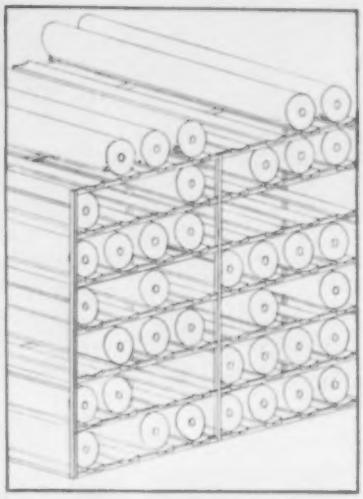
For Wool—Flexible, Fast

A fiber-blending opener is offered by Davis & Furber Machine Co. as a new and important unit in the firm's series of fiber preparation and spinning equipment on the woolen system.

The opener is said to be flexible enough to meet the requirements of a wide variety of stock which may be fed to it. The machine is built on a cast-iron frame with T-slot arches to permit wide adjustment of workers and also of strippers.

Lags running the length of the cylinder have pins mounted on a wooden base that may be unbolted for change to lags with different size pins. Chain and sprocket drives make speed changing a simple process of changing sprockets; however, variable-speed units may be added. For safety, an electric interlock shuts off all power when covers on cylinders are opened.

Feed table, including aprons and rolls operated by a separate motor, can be moved back to facilitate cleaning. One-shot lubrication feeds apron and roll bearings. Antifriction bearings on cylinder unit are equipped with grease fittings. **(Circle E-7 on Reader-Service Card)**



E-10—Rack for carpet storage makes it easy to move carpet rolls in and out with a fork truck. The essential part of this rack is the concave pan of smooth drawn steel, as long as the rolls but of substantially less width than the roll diameter. The rack is, of course, noncombustible. The pans, being smooth, will not tear the carpet or introduce splinters into it. The wide gap between the pans facilitates sprinkler-system control in event of fire.

There are no marks on the stored carpeting such as sometimes arise from gaps between boards of wood decks. The steel-rack price is competitive with good-quality wood decking. The pans may be installed on existing racks. The available depths are 9½, 12½, 15½, and 18½ feet, with height limited by ceiling and/or ram truck lift. Allen Iron & Steel Co.

. . . *Turn to page* 128

Latest Word in Can Coiler-Turntables

A high-speed can coiler unit, accommodating 18-, 20-, or 24-in. cans up to 42 inches high, has been developed by Warner & Swasey Co. for application to its pin-drafter intersecting draw frames.

The new coiler (pusher type) will handle sliver weights from 50 to 1,050 gram per yard, traveling at 500 fpm. Drive for rotor and turntable is a combination chain and gear train, with variations in speed and direction of turntable rotation. Multiple groups can be set up by mounting single units side by side. Antifriction bearings eliminate most oiling requirements and lessen the danger of stock contamination. **(Circle E-8 on the Reader-Service Card)**

already..

the following firms intend to show...

1961

INTERNATIONAL exhibition of knitting machinery and accessories

OCT. 11-21

Rimoldi, Virginio, & Co., S.p.A., Italy.
Rockelmann, Erich, Germany.
Rose Bros. (Gainsborough) Ltd., U.K.
Santoni & C., Italy.
Saurer, Adolph, A.G., Switzerland.
Savio, Officine, & Figli, Italy.
Schaffhausen, Fabrique de Machines a Tricoter de, Switzerland.
Scharer Textile Machine Works, Switzerland.
Schlafhorst, W., & Co., Germany.
Schubert & Salzer Maschinenfabrik AG., Switzerland.
Schultheis, Walter & Co., Germany.
Schweiter Maschinenfabrik AG., Switzerland.
Scragg, Ernest & Sons Ltd., U.K.
Scragg, Sydney & E., Ltd., U.K.
Servo-Stop S.a.r.l., France.

Aimanio Maschinenfabrik GmbH., Germany.
Alucolor FMN Schuster & Co., Leichtmetalltechnik, Germany.
Andrew, The, Engineering & Development Co. Ltd., U.K.
Aquila Santagostino S.p.A., Italy.
Arundel Coulthard & Co. Ltd., U.K.
Ateliers Roannais de Constructions Textiles, France.
Atkins Fulford Ltd., U.K.
Barfuss, Wilhelm, GmbH., Germany.
Bellmann, Eugen, GmbH., Germany.
Bellow Machine Co. Ltd., U.K.
Bentley, The, Engineering Co. Ltd., U.K.
Bentley, Martin Ground Form Cutter Co. Ltd., The, U.K.
Bibby, T., & Co., U.K.
Bodden, William, & Son Ltd., U.K.
Braithewaite, Isaac, & Sons Engineers Ltd., U.K.
Briem Hengler & Cronemeyer KG., Germany.
British Nylon Spinners Ltd., U.K.
Brook Motors Ltd., U.K.
Brown & Green Ltd., U.K.
Carolina Knitting Machine Corporation, U.S.A.
Charnwood, The, Engineering Co. Ltd., U.K.
C.O.M.U.T., Italy.
Cotton, William, Ltd., U.K.
Croon & Lucke GmbH., Germany.
Crowther Limited, U.K.
Delerue, D., & Cie, France.
Durrant, G., & Sons, U.K.
Ehemann, Kurt, Germany.
Eppinger, Gottlieb, KG., Germany.
Famatex GmbH., Germany.
Fenner, J. H., & Co. Ltd., U.K.
Fidelity Machine Co. Inc., U.S.A.
Fleissner Limited, U.K.
F.N.F. Machinery Manufacturing Co. Ltd., U.K.
Foster Knitting Machine Co., Ltd., U.K.
Grieve, T., & Co. Ltd., U.K.
Haase & Kuhn KG., Germany.
Hammond, W., & Son (Bearded Needles) Ltd., U.K.
Heliot, Ets. Maurice, France.
Hilber & Co. KG., Germany.
Hirschburger, Eugen, KG., Germany.
fabrik Erich Hahn KG., Germany.
Hosiery Equipment Ltd., U.K.
Hosiery Times, U.K.
Hosiery, The, Trade Journal, U.K.
International Seamless Machinery S.p.A., Italy.
Kettling & Braun, Germany.
Kettma Hamburger Kettelmaschinenfabrik Erich Hahn KG., Germany.

Belle Vue MANCHESTER

Kidde Mfg. Co. Inc., U.S.A. and Germany.
Kiesel & Richter & Co., Germany.
Kirkland, A., & Co. Ltd., U.K.
Lonco Engineering Co. Ltd., U.K.
Lebocey Aiguilles S.a.r.l., France.
Lebocey, Georges, & Cie., France.
Lessona Corporation, U.S.A.
Lessona Holt Ltd., U.K.
Libe Maschinenfabrik GmbH., Germany.
Liebers & Co., Germany.
Light Alloy Construction Ltd., U.K.
Lonati, Francesco, Italy.
Longclose, The, Engineering Co. Ltd., U.K.
Macpherson, Geoffrey E., (Textile Engineers) Ltd., U.K.
Man-Made Textile, U.K.
Mayer & Cie, Germany.
Meyer, Karl GmbH., Germany
Meiners Optical Devices Ltd., U.K.
Mellor Bromley (Air Conditioning) Ltd., U.K.
Menschner, Johannes, Germany.
Mettler's, Fr., Sohne, Switzerland.
Mitchell, William, (Sinkers) Ltd., U.K.
Monk, S.A., (Sutton-in-Ashfield) Ltd., U.K.
Muller, Franz, Maschinenfabrik, Germany.
Muller, Jakob, Switzerland.
Muschamp Textile Machinery (Sales) Ltd., U.K.
Nord, Meccanica del, S.r.l., Italy.
Oerlikon, Werkzeugmaschinenfabrik, Buhrle & Co., Switzerland.
Optique et d'Instruments de Precision, S.A., Societe Belge d', Belgium.
Pegg, Samuel, & Son Ltd., U.K.
Pfaff, G.M., AG., Germany.
Plutte Koecke & Co., Germany.
Qualitex Engineers Ltd., U.K.
Quack, Herbert, Germany.
Ratti, Michele, S.p.A., Italy.
Redditch Hosiery Needles Ltd., U.K.
Reece, The, Machinery Co. Ltd., U.K.
Reggiani Meccanotex S.A., Italy.
Rohkamper, Paul, Germany.

Shaw & Marvin Ltd., U.K.
Shuttleworth, H. & Co. Ltd., U.K.
Stibbe, G., & Co. Ltd., U.K.
Stoll, H., & Co., Germany.
Stubbs, Joseph, Ltd., U.K.
Swindells Engineering Company, U.K.
Tatton, William & Co. Ltd., U.K.
Tellus Super Vacuum Cleaner Ltd., U.K.
Tessiltecnica, Italy.
Texnavo, S.p.A., Italy.
Textile Machine Works, U.S.A.
Textile Paper Tube Co. Ltd., U.K.
Textile Recorder, U.K.
Theis, B., Germany.
Thompson Textessories Ltd., U.K.
Tickopres Ltd., U.K.
Tomlinsons (Rochdale) Ltd., U.K.
Toone, B., (Nottingham) Ltd., U.K.
Torrington, The, Co. Ltd., U.K.
Trent Engineering Co. Ltd., U.K.
Tritex Engineering Ltd., U.K.
Trockentechnik Kurt Bruckner KG., Germany.
Trumeter Co. Ltd., U.K.
Union Special Machine Company Ltd., U.K.
Universal Maschinenfabrik, GmbH., Germany.
Vickers, Benj. B., & Sons Ltd., U.K.
Weldon & Wilkinson Ltd., U.K.
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1985

Equipment and Supply News

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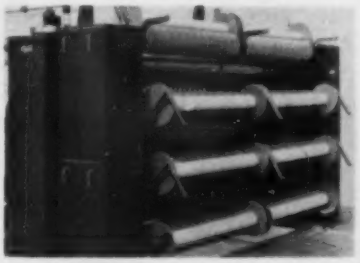
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-11—Wet-blast cleaning and finishing equipment, called "Liquamatte", is suitable especially for knitting-machine parts but adaptable for application to other textile-machine elements. A knitting-machine cylinder (above) can be refinished in 39 minutes (vs 3 days by manual methods). All areas are uniformly blasted to remove fine machine burrs in the slots, leading edges of the slot are rounded off, and directional lines are blended. Equipment will clean many parts in textile mills. Techline Div., Wheelabrator Corp.

E-12—Pillow block (Type PB) is self-aligning, has ball bearings, is designed for 300- to 600-lb. radial loads on ½- to 1¼-in.-dia. shafts. Bearing is prepacked with grease. Inner race is locked to shaft by turning collar and set screw. Fafnir Bearing Co.

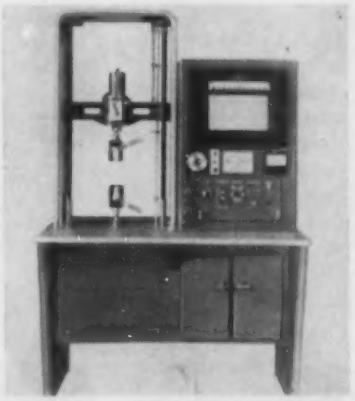
E-13—A new fiber Flex tester, no larger than a typewriter, measures wear resistance of fibers. As a result, life expectancy of fibers used in fabrics can be estimated. Instrument can test up to 10 fibers at once and records number of Flex-cycles each fiber endures. Fibertest, Inc.

E-14—Automatic doffer (Kanegafuchi of Japan) is either portable, or permanently mounted on a spinning frame. It eliminates manual doffing and replacing of empty bobbins. Right- and left-hand doffing heads travel simultaneously down the length of the frame at 25 fpm. Full-length frames are doffed in less than 2 minutes and efficiency (in terms of ends down after doffing) is 30 to 50% higher than by hand doffing. When bobbins are full, frame stops automatically, rail lowers to position, and device starts on its way. Edward S. Rudnick

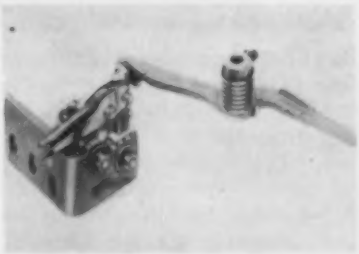


E-15—An improved high-speed tape condenser gives good performance on a wide range of wools from the finest Saxonies to heavy carpet wool. Motion-shaft speeds up to 600 rpm. Machine incorporates deep-grooved dividing rollers internal surface drum drive, multi-speed drive, traversing creel, centralized lubrication, and pneumatic waste thread removal. Platt Bros. (Sales) Ltd.

E-16—Automatic spooler (Type F) replaces a running-out bobbin with a full one, ties it in with a true weaver's knot to the end on the cheese. Motor-driven winding drum drives cheeses by surface contact. Yarn is drawn over end from bobbins, through yarn-cleaning snick plates. Machine handles wide variety of fibers and yarn counts with minimum adjustments, handles bobbins up to 14½ inches long, counts from 3½s to 125s at speeds from 750 to 1,200 yards per minute. Cheeses or cones weigh up to 6½ pounds. Built-in suction cleaning. Barber-Colman Co.



E-17 — Constant-Rate of Extension Tester (CRE) has new functions, wide versatility, uses inertialess electronic weighting and an upward-moving crosshead to run at variety of speeds. Test capacities range up to 1,000 pounds. Pushbutton control and high magnification of stress-strain curves. Clamps and fixtures meet standard tensile, tear, abrasion, burst, seam, and other tests. Scott Testers, Inc.



E-18—Lay-mounted thread cutter designed for use with C & K S-5 and S-6 looms gives automatic positioning, and assures positive straight-line motion into the shuttle. Sidelines and drag-ins are eliminated. Self-sharpening cutting blades are made of high-carbon steel. H. F. Livermore Corp.

E-19—Push-off device for fork-lift trucks is designed for mills that use pallets for in-process handling and storage but do not ship on pallets. To lift load, forks slide between stringers on top of pallet. Device pushes load onto carrier. Lewis-Shepard Products, Inc.

. . . *Turn the page*

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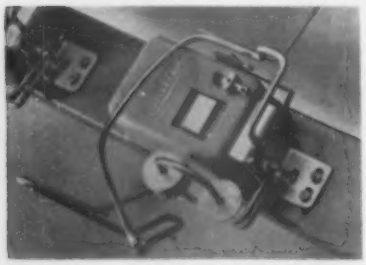
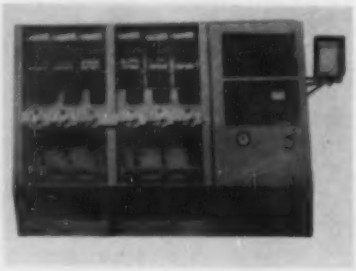
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-20—Electronic analyzer (Model K) for moisture content gives data in range of 1 to 25% in about 8 seconds. It operates on a 20-oz. sample of fiber or yarn. Pushbutton closes lid. Meter shows dielectric-constant value of sample, which operator translates to moisture content by reference to chart. Instrument tests natural or man-made fibers or skein yarn, takes up 54x41-in. space. Forté Engineering Co.

E-21—An improved Pacific evenness tester has fast-response recorders with limit pens, average computer for true average thickness and average-percentage unevenness. Also available, grooves in new sizes for testing slivers and laps. Anderson Machine Shop, Inc.



E-22—Electronic yarn cleaner (Holland-made) frees yarn from slubs, dirt, etc., is adaptable to almost every type of winder. This "Qualitex" slub-catcher detects slub or impurity electronically, actuates a knife that severs yarn. W. A. Thomason Textile Service.



E-23—Electronic yarn tester (Holland-made) called "Qualitester" gives data on number and kinds of spinning faults, tests long lengths quickly, produces diagram of yarn irregularity while yarn is run at 950 meters per minute. Variations in mass cause changes in capacitance of gaging condenser, thus cause voltage variations. The abnormal variations are automatically compared with normal variations. Slubs may be counted removed or not removed. Yarn tested may be rewound for use without waste. Qualitex.

E-24—Strobotac, with white light 70 times brighter than the previous model, is now available. Flash lasts from one to six millionths of a second, and provides high clarity. Operator can ob-speed variations of line of spindles as he walks by. General Radio Co.

E-25—Carpet thickness gage uses 1-in. circular foot under ¾-lb. pressure. Foot presses needles through carpet. When points contact floor, indicator dial shows carpet thickness. Available in various sizes and weights. Custom Scientific Instruments, Inc.

E-26—Lab instruments (English made) include: *Manra Vibrascope,* which shows denier of fiber or yarn sample over 3 cms. long. *Yarn-tension transducer* with 3-pulley system measures tension continuously. *Yarn-filament counter* shows number of filaments in about 8 seconds. *Strainometer* detects and measures yarn faults by continuous scrutiny of elastic properties of continuous-filament yarn. Stellamcor Inc.

E-27—Rotary hosiery dyeing machine, Model 12-RD-60, eliminates all gears and bearings within the vessel. Capacities range from 4 to 250 pounds per batch. Overflow design makes it possible to flush off scum and dirt from the surface of the liquor. The machine is equipped with quick-opening draw valve, water inlet connection, dye-feed funnel, draw-off spigot, thermometer, and water gage. Steam enters through a perforated pipe to give uniform heating. Stainless steel is used in all places where needed. Turbo Machine Co.

E-28—Photoelectric gage, called Dyna-Micro-Gage, is for continuous diameter-gaging of yarn, thread, cord, line, etc. It is a sensitive device for measuring minute changes of light. Measurements down to ½ micron or less are feasible. The gage is of the comparative type so it must first be calibrated against a known standard. Circuits are so stable that recalibration is seldom needed. Lindly & Co., Inc.

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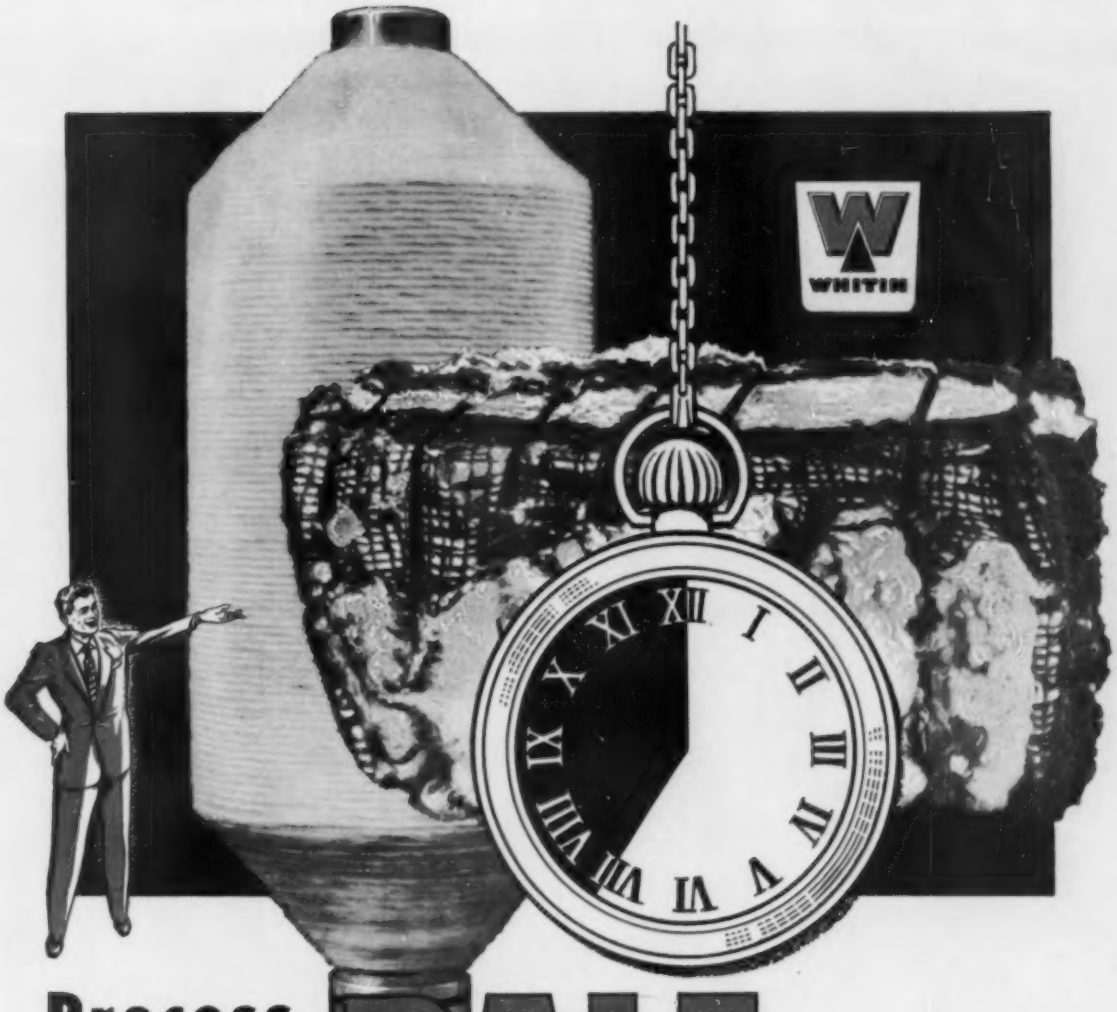

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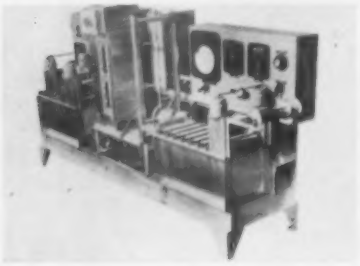
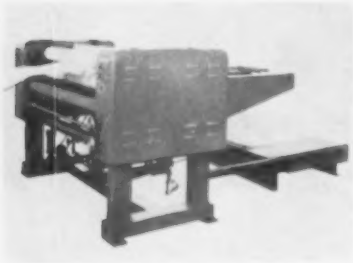


E-29—Bleaching range is designed for use with the Du Pont rapid-bleach process. The range is simple, compact, and continuous. It reduces mechanical handling. It is adaptable to any continuous or semicontinuous, open-width system, especially where medium- or heavy-weight cotton fabrics are involved. Cloth-storage time in the J-box may be cut to as little as 8 minutes. Rodney Hunt Machine Co.



E-30—Spreader-steamer for tubular knit goods has mechanism that overfeeds fabric to steaming zone for maximum shrinkage. Avoidance of pulling fabric through the steaming zone eliminates common problems. Press rolls can be covered with a variety of materials to impart new characteristics to the fabric. Tubular fabrics up to 54 inches can be processed at up to 25 yards per minute. Turbo Machine Co.

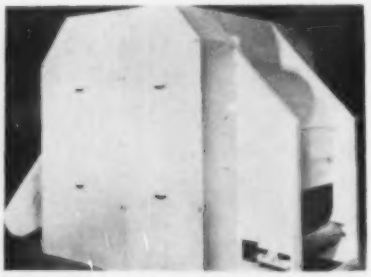
E-31—Two new finishing rolls are the Aquatrol expander and a compressed wood-fiber roll. The former is a bow expander with rotating rubber sleeve floating on a film of water —a new principle that substitutes one moving part for the many in the conventional roll. The latter is resilient even under heavy pressure, is more durable than solid wood, requires less maintenance. Rodney Hunt Machine Co.

E-32—Ring twister, called "Sav-Yarn," can produce packages up to 12 pounds. Twister has Airestop spindle, which prevents drop ply, licking, lashing, etc. Individual feed rolls and spindle stop instantly on an end break or run-out. Though spindle blade and package stop, spindle whorl keeps on revolving at 5,500 rpm. regardless of length of stoppage. Increases operator assignments, stretches tape life 500%, requires less horsepower. With full bobbins always produced, yarn waste is down, production is up. Collins Bros. Machine Co.

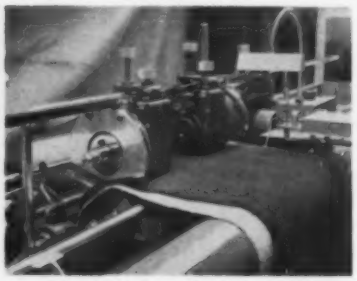
E-33—Bobbin-stripping machine, Hacoba Type KTF, operates equally well on narrow-fabric quills, braider bobbins, and broad-weaving pirns. Capacity is about 30 bobbins per minute. Variable-speed drive copes with a wide range of yarn counts. Atkinson, Haserick & Co., Inc.

E-34—Web former produces high-quality nonwoven web constructions at high speed, will convert all natural and man-made fibers into a random, air-laid web in constructions from gage weight to 4-in. thickness. It imparts multidirectional strength. May be fed from a lapper or from a special creel. Web may be fed without break to any subsequent process. James Hunter Machine Co.

E-35—SJ worsted spinning frame (for man-made fibers also) has a double-apron drafting assembly designed for high speeds, incorporates control features that give versatility in handling variety of fibers and blends. Frame is Gwaltney-type. Saco-Lowell Shops.



E-36 — Opener-blender-cleaner based on the SRRL opener features totally enclosed construction. This Saco-Lowell/Davidson-Kennedy machine can handle natural fibers and most staple synthetics, removes pepper trash and heavier waste before the latter is broken down to small particles. Mills report 30 to 50% trash content removal with substantial increases in production. Saco-Lowell Shops.



E-37—Carpet slitting or trimming machine receives carpet from coater and stores it with the selvages untrimmed. From storage, carpet is taken into the machine with pile face upward. Cutting is controlled by a sensing and tracking head. Cutters are mounted on wheels that move on rails crosswise of the machine, thereby making width adjustment simple and accurate. Carpet speed is 12 to 14 fpm. British Tufting Machinery Ltd.

E-38—Pocket-size Micronaire needs no connection to an air line or compressor, has built-in scale for weighing sample, generates own air supply. Fineness determined on the spot by inserting tuft in instrument and taking reading from indicating column. Sheffield Corp.

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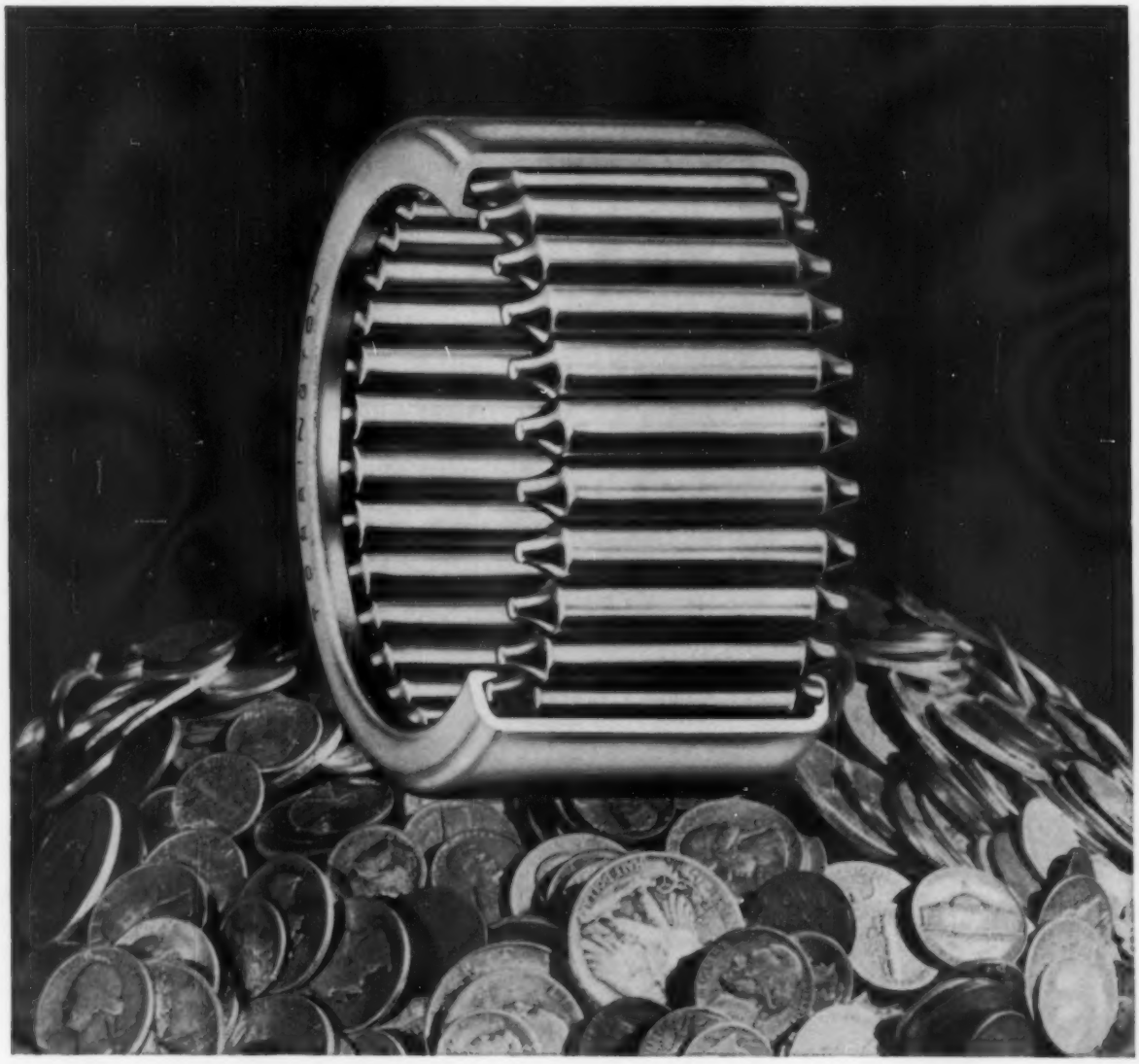

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Equipment and Supply News

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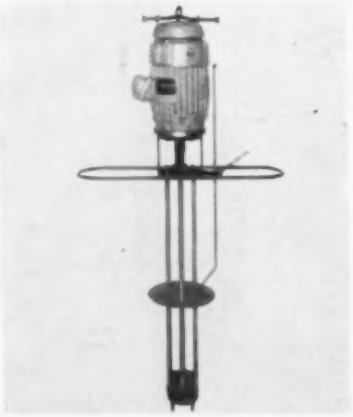
E-39—Slubbing frame, Pattern GS, produces an evener product at higher speeds. Approaches elimination of count variation, especially between front and back lines of spindles and between empty and full bobbins. New drafting system has short top and long bottom aprons. All three top-roll lines have ball bearings. Package sizes range up to 14x7 inches. Off-center drop presser pulls the roving straight through the hollow leg. Electric motions include stop, start, inch. Predetermined-length counters are connected to the stop motion. American Rieter Co.

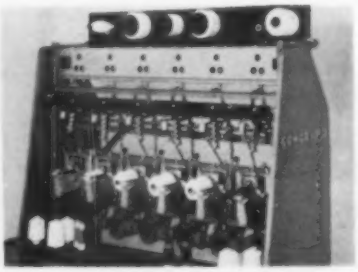
E-40—New plate-type magnets for collecting tramp iron or iron dust from fibers and other forms of textiles are now available. Showing the drawing power of the new Series 17 magnets, a 1-in. steel ball, with contact smaller than the head of a pin, requires a 28-lb. pull to separate it from the plate. The improved line of magnets is based on Erium 25, an energized Ceramic V magnetic material. Working surface may be of stainless steel or other material. Polished surface facilitates periodic removal of iron from face plate. Eriez Mfg. Co.

E-41—Winding and related equipment from Europe includes following: *Coners and tubers,* designed so only one head stops on end break or runout. *Two banks of reels* on rotating support to reel continuously. *Baller* that adjusts for various yarns and ball weights. *Double winders* that handle from 24 to 120 spindles, have grooved metal rolls (up to 12-in. traverse). *Singer* with gas or electric heat for winding yarn or threads from caps, cones, tubes, spools. Guiding-stretching machine for cloth to be tentered or guided to later treatment. Cosa Corp.

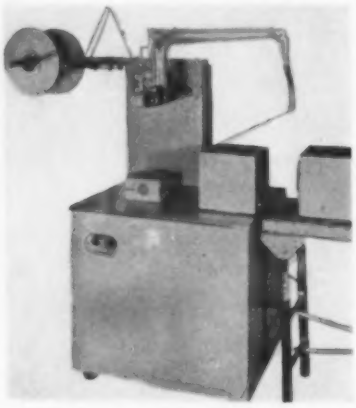


E-42—Dye mixer (also for liquids containing light starch, etc.) has a grapefruit-type head, has high shear action at 3,600 rpm., homogenizes, blends, disperses. Adjustable baffle controls rate of mixing. Sizes from ¼ hp. (2 feet high) to 20 hp. (6 feet high). E. F. Hill Machine Co.

E-43—Two new winders are called Type Rolls 10 and Type UC. Former produces large cross-wind packages, single or multiple end, is suitable for cheeses and cones up to 4°30′. Length of traverse, 10 inches; maximum package diameter, 11 inches. Grooved drums of hardened metal guide the yarn. A sensitive stop motion and a yarn-conditioning device are provided. Type UC winds from hanks or skeins to cones or cheeses with tapers of 5°57′ and 9°15′. Traverse is 5 or 6 inches. A sensitive disentanglement stop-motion is provided. Ateliers Gilbos.



E-44—Cross-winder, called "Conorapid" (F. M. N. Schuster & Co.), has been improved, now produces 1 to 3 times as many full cones as before. Speed: 2,000 to 4,000 rpm. Product tension is uniform. Machine may be adjusted to produce pineapple cones, bicones, cylinder cheeses, etc. Handles textured yarns and low-twist fine deniers. Empties and breakages are signaled electrically. Robert Reiner, Inc.



E-45—Strapping machine, called "Autobinder," applies, tensions, seals rayon strap on many sizes of packages, bands up to 15 packages per minute. Magazine holds 5,000 steel blanks used for crimping. Spool holds 5,000 yards of strap. Easy-adjust tension. A. J. Gerrard & Co.

E-46—Can coiler, improved Pacific model, automatically presents to the coiler head an empty can when the previous can is filled to a preset point. Revolving platform holds 3 cans, needs no attendant until third can is completely filled. Anderson Machine Shop, Inc.

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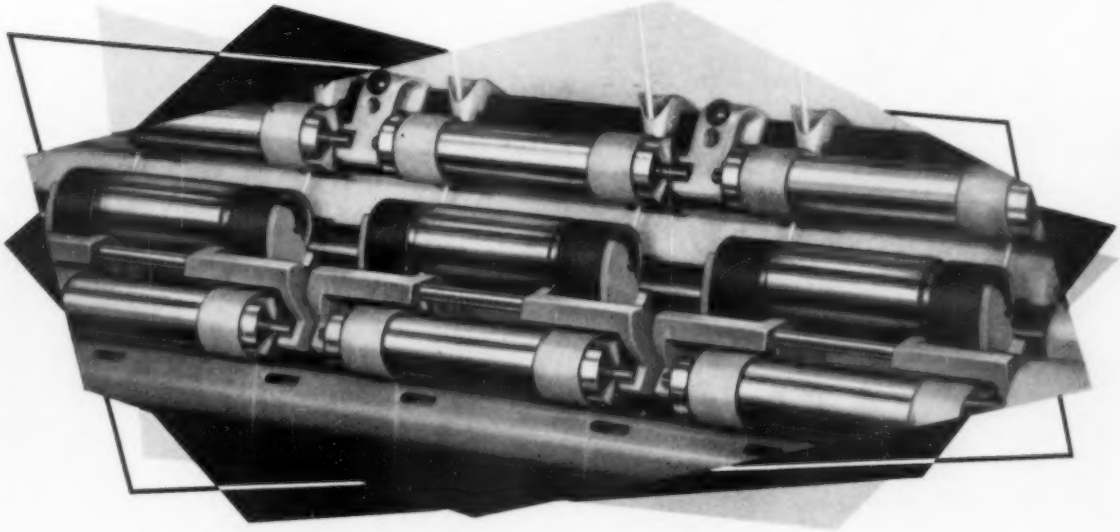
most efficient drafting unit
ever developed...

New Model
magnedraft

BY SACO-LOWELL



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Eliminates all conventional weighting equipment.**

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. . . *Begins on page* 123

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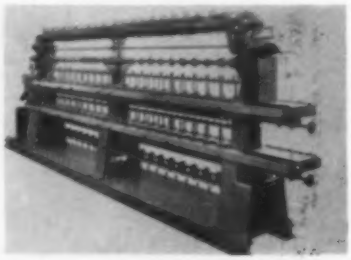
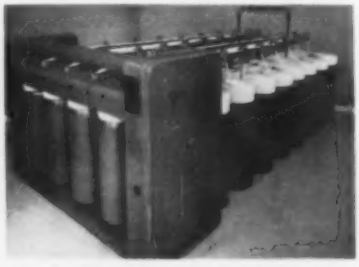


E-47—Thread-covering machine (Schaffhouse, Switzerland) has frames with 40 or more spindles. Each spindle stops individually if simply pushed clear of driving belt. Speeds from 8,000 to 16,000 rpm. for lower bank, 4,000 to 16,000 for upper bank. Each bank has speed indicator. Nylon belt insures constant speed. Feed wheels positively driven. Tension controlled by changing gear wheels. Robert Reiner, Inc.



E-48—Drawing frame (Model DO) is newly designed, runs at 600 fpm. Top and bottom lifting rolls over each can are positively driven. Drafting is three-over-five. Central-roll adjustment has scale to show setting. Axial air circulation continuously cleans drafting zone. Top rolls are pneumatically weighted. Frame takes cans up to 18x24 inches. Predetermined length control is connected with full-can stop motion. Moving parts have antifriction bearings. High-speed gears have helical teeth, run in oil bath. American Rieter Co.

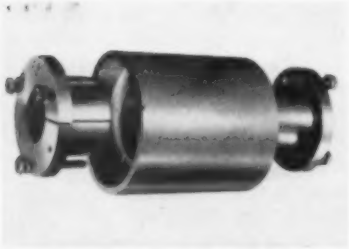
E-49—Hard-ceramic textile guides ("Regalox") have a hardness between sapphire and diamond (9 mohs), high mechanical strength, thermal-shock resistance, and immunity to chemical reaction. The line is applicable to a wide variety of uses. Roy D. Faigenbaum.

Equipment and Supply News

. . . *Begins on page* 123

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-50—Felting machine, called "Fiber-Locker," is lab-sized for experimenting with mechanically felted nonwoven fabrics. The results can be duplicated on full-size equipment. Many of the motions and speeds are adjustable. Needle boards are exact reproductions of production boards. Use in development work frees production units for full-time productive operation. James Hunter Machine Co.



E-51—Rigid coupling, "Sure-Grip No. 44," aligns and rigidly connects two shafts of diameters from ½ to $5\frac{7}{16}$ inches. Interchangeable tapered bushings clamp shafts—no need for press of shrink fits. Taper aligns shafts as torque is applied. T. B. Wood's Sons Co.

E-52 — Yarn-imperfection counter, called Neptel, reports electronically on neps, seed particles, small trash, slubs, etc. Speed: 50 yards in 30 seconds. Sample passes through ribbon-shaped light beam. Variation in light operates counters and recorder. Sheffield Co.

. . . *Turn the page*

THE *SMOOTHER*
YOUR HANDLING, THE
MORE **YOU CUT COSTS**

And you can't get faster, smoother, more efficient handling in textile processing than with Kennett Receptacles—first choice in the industry for basically better design, longer life, low cost.

Kennett Receptacles are made of National Vulcanized Fibre—not a fiber-board, but a tough plastic that combines light weight, strength, resiliency and an amazing ability to "take it" through years of abuse in mills. Most important, Kennett Receptacles are smooth . . . will not chip, tear, crush or splinter. Human hands cannot give delicate fabrics or yarns such gentle, snag-free handling. You cut container costs. You save in processing time. You cut loss from fabrics damaged in processing.

There is a Kennett size and design to fit any textile processing requirement, and Kennett products are backed by National's years of experience and proved dependability. For free line folder contact your nearest National Sales Office. Or write direct to Dept. BB-8.

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NATIONAL
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WILMINGTON 99, DELAWARE
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How to Cut Costs in Fibre Processing

The SARGENT System...

Fully Automatic Handling of Natural and Synthetic Staple from Dye Kettle or Washer to Card.

Delivers uniformly dried, lofty stock at high volume rate. Releases manpower for other work. Better than 1,000 lbs. per hour produced continuously, day in, day out. Installations have cut processing costs better than one-third.
This highly efficient, economical Sargent-designed system has only five units:

1. Rotary type Wet Feeder takes air-blown wet fibres from the dyehouse, feeds them to squeeze roll machine. Has ball-bearing main cylinder with stainless steel teeth, a rotary comb, two heavy rubber aprons — one to feed fibre to main cylinder, the other to deliver fibres to nip of squeeze rolls.
2. Extractor has sectional rubber ring roll, hammered steel bottom roll with fine knurl. Pneumatic loading, two air cylinders, control panel and indicating dial. Working at 80 lbs. pressure estimated air consumption is 4 cfm.
3. Stock Fan and Cyclone Condensor. Stock fan takes fibres from extractor, delivers them to cyclone condensor mounted above hopper of dryer feed, opening fibres and conditioning them for even, smooth delivery to dryer.
4. Rotary Feeder delivers even layer of fluffed fibres to dryer conveyor. Designed to effect a semi-combing action, eliminating matted bunches for more uniform drying, fewer neps at card.
5. Dryer with Blow-Up Section. Air-flow is down through traveling stock, with up-draft at blow-up section, midway of dryer. A highly efficient way to redistribute fibres evenly over stainless steel perforated flight conveyor and to even out moisture content of all fibres. Equipped with air-operated recording type temperature controls complete with steam control valves and air filter. These dryers are designed for easiest cleanout, fastest installation and highest operating economy of any dryer on the market.

Every machine in the system boasts Sargent's rugged construction; with simplicity of design, minimum maintenance, dependable, steady performance. Here is a system to save you money, man-power, time. Let us give you complete details.

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA • CINCINNATI • ATLANTA • CHARLOTTE • HOUSTON • CHICAGO • DETROIT • TORONTO

Equipment and Supply News

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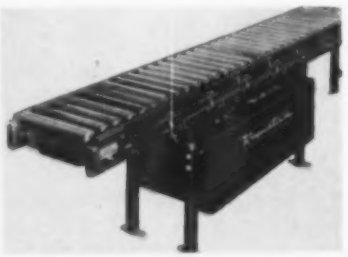
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



E-53—Live-roller conveyor, Model 1250, handles wider, larger, heavier, and more diversified loads than earlier models. High-set rollers handle packages wider than roller frame. Trigger rollers are arranged so that when a package stops over one of them and thus depresses it, the belt drive drops away, belt stops, and packages accumulate. When belt restarts, packages "peel off." Rapids-Standard Co., Inc.

E-54—Air shaft, called "Nim-Cor," speeds the mounting of rolls of textiles on winding or unwinding equipment. Deflated shaft presents smooth surface for easy insertion in rolls. Air pressure (through a valve) causes multiple rolls of metal buttons to rise on subcylinder. Buttons, faced with brake-lining material, give nonslip contact with roll core and position shaft in core's center. For coreless or narrow-core work, shaft comes with elastomer sleeve. Sizes: ¾- to 12-in. diameter, 3 to 25 feet long. Nashua Industrial Machine Corp.

E-55—A super-precision metallic card wire (Graf & Co., Switzerland) is now available in the United States. It is made to Booth specifications, has been widely tested. Ultra-uniform tooth height, shape, and temper are features of the product. Benjamin Booth Co.

. . . *Turn the page*

BARBER-COLMAN

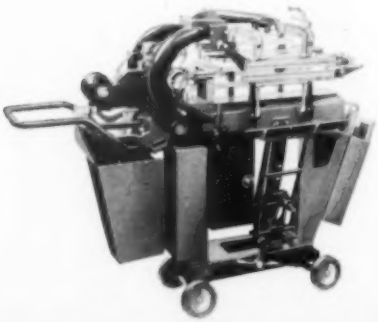
SEE THESE MACHINES IN ACTION AT GREENVILLE

SERIES "M" MODELS NOW MADE IN **10** SIZES
FROM 36" TO 126" BY 10" VARIATIONS

21st SOUTHERN TEXTILE EXPOSITION
GREENVILLE S. C.
OCTOBER 3rd - 7th 1960

PORTABLE *Warp-Tying Machines* FOR ALL PURPOSES

The BARBER-COLMAN line of warp-tying machines has now been extended to cover practically every conceivable application. As noted above, the Type "M" machines are now available in *ten* sizes. These machines tie the *full width* of the warp in one operation, work directly in back of the loom, and are made in several types to tie-in cotton, spun yarns, filaments, wool, worsteds, or synthetic yarns from a flat sheet or from an end-and-end lease. When using a Type "M" Warp-Tying Machine, none of the weaving elements need be removed nor any of the loom settings disturbed. The picture at the right shows the special cart used for protecting the Knotter Unit when not in use and for carrying it from one frame to another when two or more are employed. This carrier also contains the variable speed-controller for the Knotter Unit. These machines are probably the most versatile available for most mill conditions.



IMPROVED SERIES "L" MODELS IDEAL FOR CERTAIN CONDITIONS

BARBER-COLMAN Model "L" machines are familiar to two generations or more of mill people, because they have been on the scene in one form or another for 45 years. The latest designs, one of which is shown here, have many up-to-date improvements which distinguish not only their appearance but also their operation and efficiency. These compact, versatile, and easily-moved machines have many important applications in both large and small mills. Barber-Colman representatives are thoroughly versed in the usefulness and applicability of both Model "L" and Model "M" machines, and can be consulted with confidence as to which might suit a given situation best. Also, it is important to know that all users of Barber-Colman machines are served promptly and skilfully by an alert service group of wide experience.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

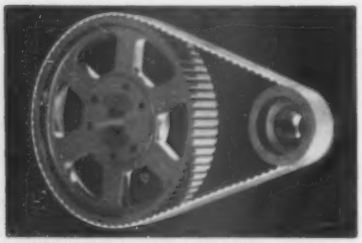
BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. — GREENVILLE, S. C., U.S.A. — MANCHESTER, ENGLAND — MUNICH, GERMANY

INDIA	MEXICO	BRAZIL	JAPAN	PAKISTAN	PAKISTAN
Ballibox & Company Forbes Street, Fort Bombay, India	J. Rahasa Isabel la Catolica 45-913 Apartado 7348 Mexico D.F., Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201/3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

WOOD'S POWER TRANSMISSION PRODUCT NEWS



POSITIVE ACTION—LONG LIFE

Wood's Timing Belt Drives provide positive, slip-free action. Belts are all muscle. No high initial tension, tension devices or lubrication needed. Drives are light weight, compact . . . quiet and clean. Wide load and speed range. Equipped with famous Sure-Grip Bushings. Write for Bulletin 2100.

CIRCLE 252 ON READER SERVICE CARD

HIGH PERFORMANCE VARIABLE

Wood's stationary control, "VPS" Variable Speed Drives won't freeze or stick. No lubrication is needed. Speed changes are made accurately and quickly by turning an adjusting screw from either side. Initial, operating and maintenance costs are lower. Write for Bulletin 1100.

CIRCLE 253 ON READER SERVICE CARD

REVOLUTIONARY NEW VARIABLE

Revolutionary resilient cam follower construction of Wood's new "MCS" motion control, variable speed drives holds constant driven speeds under varying torque loads. Like the "MS," the "MCS" won't freeze or stick. Check oil only once or twice a year. Write for Bulletins 8102, 4101.

CIRCLE 254 ON READER SERVICE CARD

MPT/360B

Woods

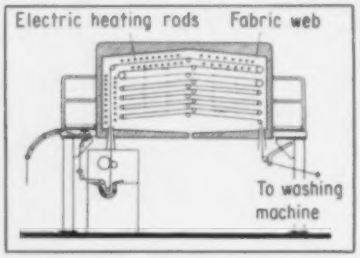
T. B. WOOD'S SONS COMPANY

CHAMBERSBURG, PENNSYLVANIA

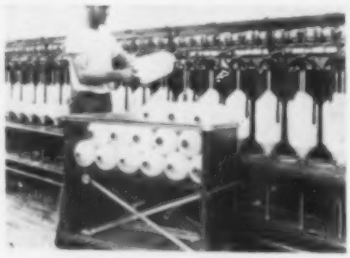
ATLANTA • CAMBRIDGE • CHICAGO
CLEVELAND • DALLAS

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-56—Line of high-speed braiding machines (Herzog-Auerbach Co., West Germany) includes double-head, 12- and 16-carrier round braiders; double-head, 12-carrier solid cord braiders; double-head, 25-carrier flat lace braiders; 8-carrier square braiders; 8-head, 16-carrier braiders for sewing twine, fishing line, etc.; heavy 16-carrier rope braiders; also braiders driven from one center gear. Vanderburgh & Co.



E-57—Cloth oven, called "Electro-Fixer," is electrically heated for fast development of vat colors and for desizing, bleaching, polymerization of synthetic resins, etc. Uses no steam (except what is evaporated from wet cloth). Takes temperature from 250 to 395 F., uses little current, holds constant humidity. Comes in two sizes: Type I (maximum speed 20 yards per minute), Type II (50 yards per minute). Alkali and reducing agent may be padded on cloth at entry. Final delivery may be to washing machine. Fixation chamber is on pillars. Cosa Corp.

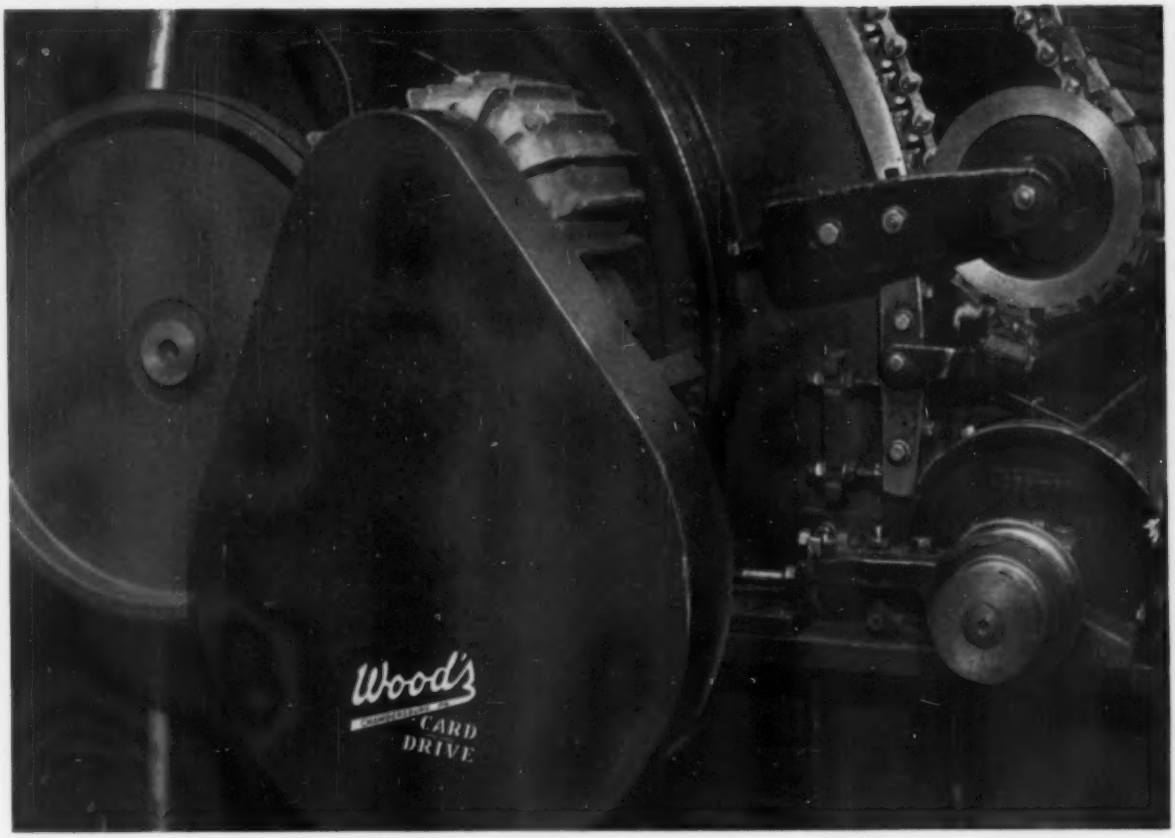


E-58—Constant-level truck, called "Unilevel," has spring-supported floating bottom, enabling workers to lift heavy yarn packages in and out without bending over. Vulcanized-fiber structural material resists abrasion and impact, cleans easily. National Vulcanized Fibre Co.

E-59—Worsted comber (Model M) boosts production as much as 400%, handles wool or wool-man-made-fiber blends at 75 pounds per hour from 6-head delivery, adapts some features (motions, setting arrangements, design elements) from cotton comber. Runs at 25-nips-per-minute speed. Fringe is fed on backward movement of nipper frame, is combed by 14 rows of needles in half lap. As knife opens, fringe is positioned into bite of detaching rolls by cushion plate and control blade. Combing and piecing are done by descending top comb. Whitin Machine Works.

E-60—Drying oven allows skeins to be inserted, inspected, and removed without disturbing other specimens or changing oven conditions. Eight slots in the top of the oven house covers and rods for draping samples. Samples may be removed one at a time. Temperature range is 35 to 260 C. Controls include thermostat plus limitstat to prevent overheating. Interior: 24x 20x30 inches. Electric Hotpack Co., Inc.

. . . *Turn the page*



why is Wood's the industry's newest, yet most widely specified Card Drive?

Because Wood's Card Drive is simple, smooth-starting and dependable. Because it costs less to operate and less to buy than any other individual card drive available. Because it offers all of the advantages of individual card drives without clutches or gear reducers to adjust or maintain. If you haven't already done so, be sure to investigate Wood's Card Drive.

Wood's

write for bulletin 6100

T. B. WOOD'S SONS COMPANY • CHAMBERSBURG, PENNSYLVANIA

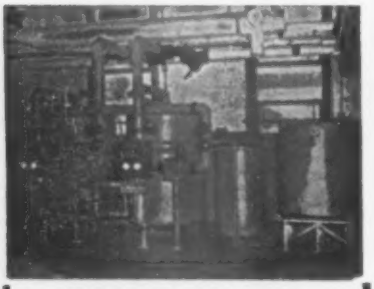
ATLANTA • CAMBRIDGE • CHICAGO • CLEVELAND • DALLAS

CD/160

CIRCLE 141 ON READER SERVICE CARD

Out Goes
LINT · FLY
TRASH
from your
SPINNING FRAMES
and ROVING FRAMES
Quickly • Economically

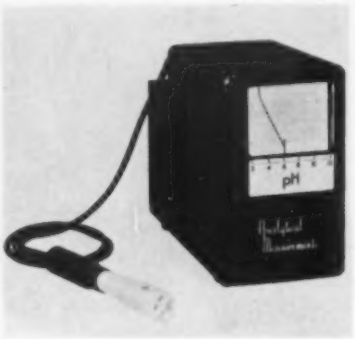
by using
M-B AMOSKEAG PNEUMATIC ROLL PICKER
Now, Improved MODEL 59
A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.
Write for Literature
M-B PRODUCTS
46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN
CIRCLE 255 ON READER SERVICE CARD



IVERSAND WATER SOFTENER PLANT
producing
CLEAR IRON-FREE 100% SOFT WATER
Often For As Little As 1¢ per 1000 Gallons
Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?
HUNGERFORD & TERRY, INC.
Clayton 9 New Jersey

Textile World. . . Equipment and Supply News

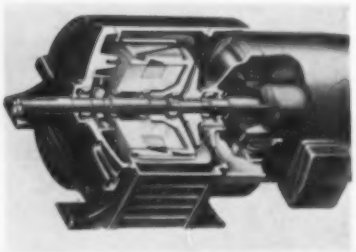
E-61—Productimeters have improved features to meet many textile needs. For example, a counter and contactor will count only full quills turned out by an automatic quiller, passing over those that are not fully wound. Can be also applied to bobbin stripper for an incentive-wage count or to determine machine efficiency. Other counters provide knock-off on drawing frames, warpers, etc. Durant Mfg. Co.



E-62—A recording pH meter is available which serves both as meter and strip recorder. Chart paper roll carries 63 feet of paper which will last for a month's continuous usage at rate of one inch per hour. The chart speed may be varied up to 16 inch per hour, if desired. A pressure-sensitive coating eliminates ink problems for the stylus. Chart drive may be disconnected. Amplifier compensates for line voltage fluctuation and uses standard radio tubes. The instrument sells for $195, f.o.b. *Analytical Measurements, Inc.*

E-63—A centralized lubrication system offers improved features. Two main supply lines connect all measuring valves which, in turn, discharge to each bearing. The central station, as well as the measuring valves, is adjustable. Cycle frequency of the system is controlled by an electric clock. Alarm devices alert personnel to any interruption in the system. *Farval Div. of Eaton Mfg. Co.*

E-64—Yarn balance operates by lever-and-fulcrum system with optical scale projected in front of instrument for easy reading. Scale has three systems: grams, cotton yarn number, tex units. Operation is unusually fast. Results are accurate. Mettler Instrument Corp.



E-65—Kinatrol eddy-current coupling speed variator is suitable for small range drives, finishing machines, slashers, warpers, beamers, etc. Unit includes induction motor with ratings from 5 to 100 horsepower. Output shaft is adjustable. *General Electric Co.*

E-66—A group of improved winders (Schweiter, Ltd., Switzerland) has been prepared for the American market. Among the new features are a dust-removing device on superautomatic pirn winder Type MSL and a parallel pirn-depositing arrangement. Other deliveries are adapted to loom requirements from various makers. There's also improved yarn-delivery design on the cone winders. H. J. Theiler Corp.

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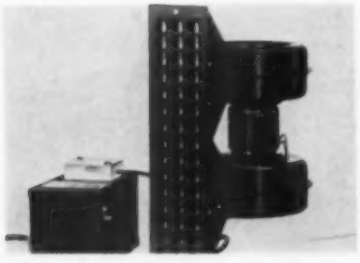
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-67—New electric counter (Model 6-Y-1-RMF) is said to give accurate counts at high, medium, and low speeds with life rating of 30 million counts at 1,000 per minute. Device has solenoid escapement and built-in rectifier for a-c operation. Relubrication is said to be rarely needed. It may be mounted on or remote from the machine. *Durant Mfg. Co.*

E-69—Sample-weaving loom (Swiss made) is designed for yarn-dyed pattern effects, has 24 harnesses controlled by a pegboard. Pegboard electrically selects sequence of harness operation. Simple punched-design card controls ground weave. Changes in pegboard provide wide variety of patterns. Loom is 20 inches wide, runs at 62 ppm. A special warping machine is available. Sample Weaving Machine Co.

E-68—An operator's chair, newly designed and improved, is said to give greater comfort to those who operate machines, such as for sewing, while seated. This posture-type swivel chair may be adjusted in various ways individual operator's preference. Back and seat are of five-ply birch wood; the legs, of 1-in. tubular steel, are wide spread for maximum stability. *Singer Sewing Machine Co.*



E-70—A long-range static eliminator, called the Aerostat, is said to operate on a new principle. The device includes a neutralizer head in the air outlet of a centrifugal blower and ionization is carried over distances up to 4 feet by the air stream. It is available in 10-in. or 20-in. models. Applied to each side of loom, it serves both warp and filling. On knitting machines or narrow-fabric looms, the Aerostat is said to solve problems where space is limited. On creels, its use is said to simplify installations. *Simco Co.*

SEAMLESS!
SNAG-FREE!

Now you can get Diamond Fibre Roving Cans in the big 16" and 18" diameters from regular stock at the Spartanburg plant-warehouse.

Static-free rolled fibre top rim for running synthetics; one-piece steel top rim; or swedged top rim—these meet all roving requirements.

CDF Diamond Fibre Roving Cans are smooth, strong, long-lived. Their interior surface, like porcelain, resists cracking and softening—won't snag yarns.

Make the CDF Spartanburg warehouse (834 Hayne Street, Spartanburg, S.C.—Tel. 3-6397) your headquarters for fibre and Celoron loom parts, gears, trucks, and mill boxes. Call Spartanburg or write for CDF Receptacles Catalog.

CDF **CONTINENTAL-DIAMOND FIBRE**
A Subsidiary of The Budd Company
Newark 55, Del.

CIRCLE 143 ON READER SERVICE CARD 143

By guarding your processing line against wrinkling, the Kay Slat Expander:

1. Allows faster, more efficient machine operation
2. Reduces losses through rejection
3. Assures tighter, neater rolls
4. Assures higher-quality printing and closer register

Supplied with wooden slats for use at room temp. and aluminum for use in ovens, to 550°.

Write for a data sheet

KAY MACHINE COMPANY INC.
Expanders and Rollers

130 Paterson Ave., E. Rutherford, N. J., WEbster 3-4641
EXPORT OFFICE: 401 Broadway, New York 13, N. Y.
MIDWEST REPRESENTATIVE: C. J. Beringer Co.
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CIRCLE 256 ON READER SERVICE CARD

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- Merchandise your advertising
- Conduct surveys
- Get inquiries and leads for your salesmen
- Pin-point geographical or functional groups
- Sell direct
- Build up weak territories
- Aid dealer relations

Direct Mail is a necessary supplement to a well rounded Business Paper advertising program.

Most progressive companies allocate a portion of their ad budgets to this second medium at the same time as they concentrate on the best business publications.

600,000 of the top buying influences in the fields covered by the McGraw-Hill publications make up our 150 mailing lists. Pick YOUR prospects out of our Industrial Direct Mail catalogue.

Write for your free copy.
It contains complete information.

Textile World CALENDAR

September

AATT, monthly meeting, Della Robbia Room, Hotel Vanderbilt, New York, N. Y., Sept. 7

Combed Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 8 & 9

Textile Quality Control Association, fall technical meeting, Clemson House, Clemson, S. C., Sept. 8 & 9

Southern Textile Overseers Association, family meeting, Greenwood, S. C., Sept. 17

First International Textile Dyestuffs, Finishes and Auxiliaries' Exhibition, Free Trade Hall, Manchester, England, Sept. 22 & 23

AATCC, Piedmont Section, Hotel Charlotte, Charlotte, N. C., Sept. 23 & 24

Chemical Finishing Conference, sponsored by the National Cotton Council, Statler Hotel, Washington, D. C., Sept. 28 & 29

North Carolina Textile Manufacturers Association, annual meeting, Carolina Inn, Pinehurst, N. C., Sept. 29 & 30

October

21st Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 3 to 7

Carded Yarn Association, annual meeting, Grove Park Inn, Asheville, N. C., Oct 6 & 7

AATCC, national convention, Sheraton Hotel, Philadelphia, Pa., Oct. 6 to 8

Southern Textile Overseers Association, annual meeting, Hotel Greenville, Greenville, S. C., Oct. 7

Institute of Textile Technology, technical advisory committee and board meeting, Charlottesville, Va., Oct. 18 & 19

Ga. TOE, fall meeting, Hightower Building, Georgia Institute of Technology, Atlanta, Ga., Oct. 22

The Fiber Society, fall meeting, Washington Hotel, Washington, D. C., Oct. 27 & 28

November

Thread Institute, annual meeting, Hotel Commodore, New York, N. Y., Nov. 10

Alabama Textile Education Foundation, fall meeting, Thach Auditorium, Auburn, Ala., Nov. 12

1961
April

45th Knitting Arts Exhibition, Civic Auditorium, Atlantic City, N. J., April 24 to 28

Textile World . . . ADVERTISERS' LITERATURE

To get items you want offered in the advertisements in this issue just circle numbers on Reader Service Card next to back cover.

A350—Slat Expander. Data sheet for further details. Kay Machine Co., Inc.

A351—Pneumatic Roll Picker. Free literature for further details. M-B Products.

A352—Flat Belts. Literature for further information. Eng'g Dept. J. E. Rhoads & Sons.

A353—Testers for Color Fastness. Write for Bulletins on Atlas-Ometers. Atlas Electric Devices Co.

A354—Receptacles. Write for free folder on complete line. National Vulcanized Fibre Co.

A355—Chemigum Latex. For further details write for Tech Book Bulletins. Goodyear, Chemical Div.

A356—Density Control System. For full details write for engineering data sheet 220-221. The Foxboro Co.

A357—Cloth Expanders. Technical Bulletin TEB-58 "Free Wheeling Expander" contains description, principles of Application and Specifications. Mt. Hope Machinery Co.

A358—Roving Cans. Write for CDF Receptacles Catalog. Continental-Diamond Fibre.

A359—Acrylic Latex. For more information write Dept KB-4. B. F. Goodrich Chemical Co.

A360—Lubrication. For "Stop Loss" through organized lubrication and a Lubrication Control System send for Co-Ordinated Booklets. Texaco Inc.

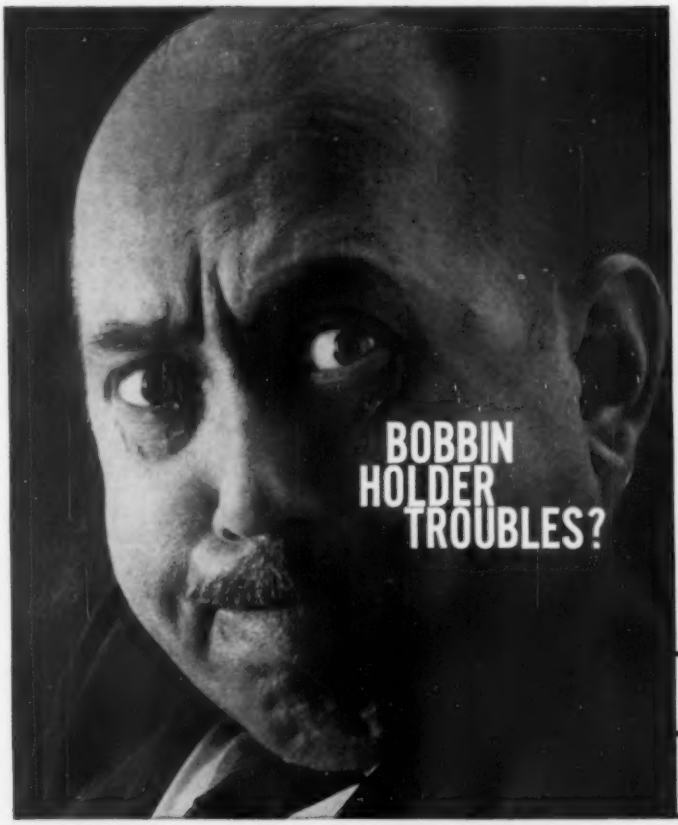
A361—Multi-Color Screen Printing Machine. Write to Dept TW-8 for illustrated catalog and printed fabric samples. E. S. Rudnick.

A362—Frame Cleaning. For more information write for Bulletin 32-A. Bahnson Co.

A363—Steel Strapping. Write for Idea No. S5-17 to Dept. TBS-80. Acme Steel Co.

A364—Power Transmission. For information on various types, write for the following Bulletins—
Bulletin 2100-Belt Drives.
Bulletin 1100-"VPS" Variable Speed Drives.
Bulletins 8102-4101-"MCS" Variable Speed Drives.
Bulletin 6100-Card Drive.
T. B. Wood's Sons Co.

A365—Factoring. Booklet "Profit Through Factoring" gives complete information. Dept. TW-8 Walter E. Heller & Co.



Bobbins falling off the creel? Yarn stretching and breaking because of inferior bearings? Limited to one size bobbin? Labor costs increasing due to excess creeling time?

Bendix offers *quality* bobbin holders that correct all these troubles. Both the Bendix® Spin Master (toggle) and Eclipse (spring) type bobbin holders are now offered with various bolt dimensions and thread sizes *that are interchangeable with your present installation.* Production losses can be kept to a minimum during change-over.

If you need or plan a replacement program, be sure this time to specify Bendix. The final cost is less.

Bendix-Elmira

Eclipse Machine Division—Elmira, New York

THE Bendix CORPORATION

Odell Mill Supply Co., Greensboro, N. C. North Carolina • Virginia	Export Sales: Bendix International 205 E. 42nd St., New York 17, N.Y.
Greenville Textile Supply Co., Greenville, S. C. South Carolina • Georgia Alabama • Tennessee	FURNISHED AS ORIGINAL EQUIPMENT BY LEADING TEXTILE MACHINE MANUFACTURERS

CIRCLE 257 ON READER SERVICE CARD

Leading Garnetters & Textile Mills SIMPLIFY CUTTING OF THREAD WASTE with "GIANT" CUTTERS

GIANT Thread Waste Cutters have been designed by Taylor-Stiles Engineers working closely with leading garnetters and textile mills. As a result, GIANT Cutters include the features most desired by the industry. Features such as (1) Uniform feed, (2) Freedom from jamming, (3) Instant change of length of cut, (4) Cutting of synthetics without fusing, (5) Efficient shear cutting with lower power consumption, (6) Ability to cut most synthetics, man-made or natural fibers easily, (7) Capacities up to 3000 lbs./hr., (8) Easy accessibility to all parts.

All these are backed by Taylor-Stiles technical assistance and know-how developed by 98 years experience in building GIANT Cutters, "giants" for wear and "giants" in production.
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RIEGELSVILLE, NEW JERSEY, Phone: WYman 3-7191

INDUSTRIAL CUTTING EQUIPMENT FOR PLASTICS, RUBBER, TEXTILE, PAPER AND OTHER INDUSTRIES; MACHINERY FOR BALE OPENING

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(ABOVE) GIANT Thread Waste Cutter in operation at William Barnet & Son, Rensselaer, N. Y.

☐ I would like more information on your free sample cutting services.
☐ I would like more information on your thread waste cutters.

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COMPANY_____

ADDRESS_____

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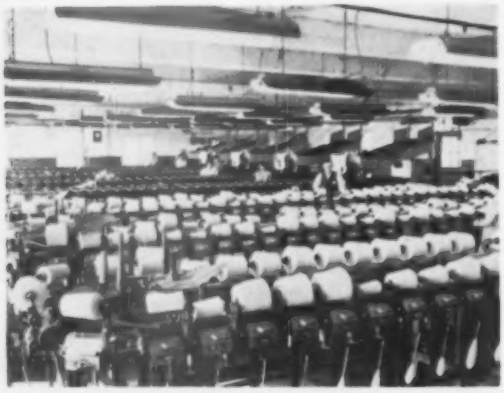
CIRCLE 145 ON READER SERVICE CARD

ABBOTT MACHINE CO., Inc.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.



AUTOMATIC CONE OR TUBE WINDERS—for winding all types of spun yarns on cones or tubes for Warping, Dyeing, Twisting, Quilling, Knitting or Sales Packages.

SPECIAL WINDING UNITS FOR KNITTING CONES—include a new slub catcher and a new waxing attachment, which uses standard size commercial wax disks.

LARGE PACKAGES—can be wound up to 11½ inches in diameter for use on shuttleless looms and looms that require a cone supply.

MODEL I AUTOMATIC QUILLER—for coarse count cotton, worsted, wool and other spun yarns, delivers full loom bobbins automatically into boxes, onto pinboards, on wide belt conveyor for inspection of bobbins, or into specially made magazines for automatic loom feeder.

MODEL II HIGH SPEED AUTOMATIC QUILLER (10,000 R.P.M.)—for winding fine count cotton and synthetic yarns of either spun or filament construction.

Also delivers full looom bobbins automatically into boxes, onto pinboards or wide belt conveyor for inspection of bobbins.

Under some conditions one operator can run two or three machines and produce upwards of 2500 full loom bobbins per hour.

ABBOTT FULLY AUTOMATIC RADIAL QUILLER, MODEL II—especially designed for flexibility, is very versatile and particularly well adapted for winding numerous small lots of filling.

Winds coarse or fine count cotton, worsted, wool, rubber and various synthetic yarns, either spun or filament.

Automatic delivery of full loom bobbins onto pinboards, wide belt conveyor for inspection of bobbins, into baskets or other type containers.

Automatic delivery of bobbins can also be supplied whereby full loom bobbins from the individual cones and spindles are delivered into separate containers, which is highly desirable for loom finish yarns and the like.

The Radial Quiller can also be equipped with measured yardage attachments to give accurate, uniform bobbin yardage, as required for two-shuttle looms.

A wide range of spindle speeds for approximately 1000 R.P.M. to 10,000 R.P.M. is obtainable.

One operator can run several machines and thus produce up to 2000 loom bobbins, or more, per hour.

NEWS ABOUT SUPPLIERS

ALLIED CHEMICAL CORP., New York, N. Y.—Has started building a multimillion-dollar plant for the production of fine-denier Caprolan nylon yarn in Irmo, S. C. The company's National Aniline Div. will operate the plant. The company's Solvay Process Div. has appointed Ronald Lovatt manager of the Calcium Chloride Section with headquarters in New York City. . . . **ALLIS-CHALMERS MFG. CO.,** Milwaukee, Wisc.—Has named G. A. Saar general manager of the mechanical departments and W. M. Terry, Jr., general manager of the electrical departments of the Industrial Equipment Div. . . . **AMERICAN CYANAMID CO.,** New York, N. Y.—Has named T. D. Smith manager of the petrochemicals department of the Organic Chemicals Div. . . . **AMERICAN ENKA CORP.,** New York, N. Y.—Has announced that Jan Heykoop has retired as manager of its Lowland, Tenn., plant. Walter M. Gaston succeeds Mr. Heykoop as manager of the rayon-filament plant and H. G. Heedy has been named plant manager of the rayon-staple plant. The company has announced that D. W. Smith has been named sales representative with headquarters in New York City. W. T. Rankin has been named representative in Providence and J. L. Hunter in Chattanooga.

THOMAS E. STRIBLING, JR., (left) has been named director of research for Werner Textile Consultants, New York, N. Y. KARL KLOMPARENS (center) has been promoted to industrial sales manager at Diamond Crystal Salt Co., St. Clair, Mich. VIRGIL COLLETTE (right) has been named steel roll salesman for Dixon Corp., Bristol, R. I.

AMERICAN VISCOSE CORP., Philadelphia, Pa.—Has realigned organizational responsibilities in its Research & Development Div. Product improvement and development have been transferred to the product divisions under the direction of H. H. Bitler, general manager of the Fibers Div., and G. J. Alles, general manager of the Film Div. . . . **ARMOUR INDUSTRIAL CHEMICAL CO.,** Chicago, Ill.—Has started building a research laboratory in McCook, Ill. The company plans to occupy its new quarters late this fall. . . . **BERKSHIRE COLOR & CHEMICAL CORP.,** Springfield, Mass.—Has named John F. Howell Associates, Delmar, N. Y., representative in New York State. . . . **CELANESE CORP. OF AMERICA,** New York, N. Y.—Has appointed J. W. Brooks executive vice president in charge of the Fibers and Plastic Products companies. R. W. KixMiller has been named executive vice president in charge of the Chemical and Polychem companies.

CHEMSTRAND CORP., Decatur, Ala.—Has named J. Floyd Smith staff director of marketing coordination. Peter Bubela has been promoted to manager of export sales. . . . **CORN PRODUCTS SALES CO.,** New York, N. Y.—Has named E. C. Kells manager of New York Metropolitan Industrial Sales with hedquarters in New York City. J. R. Von Bargen has been named assistant Eastern-regional manager of the Corn Products Div. . . . **CROWN CHEMICAL CORP.,** Providence, R. I.—Has bought Cravenette Co., USA., South Hackensack, N. J., and will operate the newly acquired company as a wholly owned subsidiary. . . . **CURTIS & MARBLE MACHINE CO.,** Worcester, Mass.—Has bought J. E. Windle Machine Works, North Grafton, Mass. . . .

DIAMOND ALKALI CO., Cleveland, Ohio—Has announced a modernization and expansion program at its Belle, W. Va., plant of the Chlorinated Products Div. R. G. Dow has been named field salesman for the Chicago, Ill., sales office.

JOHN H. SANDERS (left) has been named sales manager of the Chemicals Div., Eastman Chemical Products, Inc., Kingsport, Tenn. ROYDEN WALTERS (center) has been elected to the board of directors of Saco-Lowell Shops, Boston, Mass. DUNCAN B. GARDNER (right) has been named manager of corporate engineering for Vickers, Inc., Detroit, Mich.

DIXON CORP., Bristol, R. I.—Has sold its Rhode Island facilities and plan to move all operations to the South within the next two years. . . . **DODGE MFG. CORP.,** Mishawaka, Ind.—Has formed a wholly owned subsidiary, **Dodge Mfg. International, A. G.,** with headquarters in Zug, Switzerland. The company has also acquired majority interest in a new operating subsidiary, Dodge de Mexico, S. A., with headquarters in Mexico City. . . . **DOW CHEMICAL CO.,** New York, N. Y.—Has moved its textile-fibers sales and merchandising group in New York City to new quarters in Room 801, 350 Fifth Ave. . . . **DRAPER CORP.,** Hopedale, Mass.—Has formed a new subsidiary called Marion Industries, Inc., Marion, S. C. The plant will manufacture wood and metal products used primarily in servicing the textile industry in the Southeastern states. . . . **GATES RUBBER CO.,** Denver, Colo.—Has named M. T. Gilkison manager of the Industrial Sales Div. . . . **GEIGY CHEMICAL CORP.,** Ardsley, N. Y.—Has moved its Chicago office to 5677 North Northwest Highway.

GENERAL ANILINE & FILM CORP., New York, N. Y.—Has promoted W. G. Sumner to sales engineer at the Chattanooga, Tenn., branch office of the Dyestuff & Chemical Div. The division has also transferred E. R. Wilbur from its New England branch to the New York-Philadelphia branch. . . . **GENERAL ELECTRIC CO.,** Cleveland, Ohio—Has appointed R. V. Corning marketing manager of its Large Lamp Dept. . . . **GENERAL MILLS, INC.,** Minneapolis, Minn.—Has bought Daven Co., Livingston, N. J., and Laible Mfg. Co., Manchester, N. H. . . . **HARTFORD FIBRES CO.,** New York, N. Y.—Has named R. W. Armstrong sales coordinator. . . . **INTERCONTINENTAL CHEMICAL CORP.,** New York, N. Y.—Has moved its subsidiaries and its accounting department to Mountainside, N. J. . . . **IONS EXCHANGE & CHEMICAL CORP.,** New York, N. Y.—Has changed its name to Yardney Chemical, Inc.

INDUSTRIAL RAYON CORP., New York, N. Y.—Has moved its sales-service department from New York to Cleveland, Ohio. . . . **INTERNATIONAL SALT CO.,** Clarks Summit, Pa.—Has opened its new $2-million administrative headquarters. . . . **JOHNSON-ATLANTIC STATES MOTOR LINES,** Charlotte, N. C.—Has opened a motor-freight terminal at Cochran Field, Macon, Ga. . . . **LASSITER CORP.,** New York, N. Y.—Has announced that an agreement proposing the merger of Lassiter into Riegal Paper Corp. has been approved by the boards of directors of the two companies. . . . **LESTOIL PRODUCTS, INC.,** Holyoke, Mass.—Is the new name of Adell Chemical Co., Inc. Stockholders of Lestoil Products include Standard International Corp., Andover, Mass., its owners and associates thereof. . . . **METRO-ATLANTIC, INC.,** Centredale, R. I.—Plans to build a chemical plant in Simpsonville, S. C.

MINNEAPOLIS-HONEYWELL REGULATOR CO., Minneapolis, Minn.—Has announced that Brown Instruments Div.

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FREE-WHEELING®
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VARI-BOW® and FIXED BOW

ELIMINATE ▶ WRINKLES
LOSS of WIDTH
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STREET _____
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. . . Begins on page 146

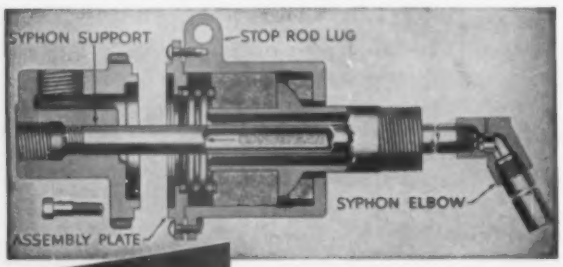
has created a new planning and procurement department with W. B. Schellenberger as manager. . . . **MONTECATINI SOC. GEN.,** Milan, Italy—Has announced that its wholly owned American subsidiary, Novamont Corp., is scheduled to go on stream early in 1961 at its Neal, W. Va., plant. . . . **OAKITE PRODUCTS, INC.,** New York, N. Y.—Has transferred L. E. Welch to Kokomo, Ind., where he replaces D. B. Lamb who has been appointed manager of the company's Detroit division. . . . **OLIN MATHIESON CHEMICAL CORP.,** New York, N. Y.—Has named Dr. H. A. Bruson vice president for research of the Chemicals Div. . . . **PENICK & FORD LTD., INC.,** New York, N. Y.—Has named three new vice presidents to its Corn Refining Div. Dr. J. E. Killinger has been named vice president of technical sales service and field development and Dr. C. C. Kesler has been named vice president of research and development. S. H. Foster is vice president of production. All three men will have headquarters at the Cedar Rapids, Iowa, plant.

FOXBORO CO., Foxboro, Mass., has moved its sales and service headquarters for the Southeast to this new building in Chamblee, Ga.

PERMUTIT CO., New York, N. Y.—Has acquired all rights in the Western Hemisphere from R. P. Moore & Co. Ltd., Johannesburg, South Africa, to manufacture and market a line of large-capacity fluid clarifiers for water and waste treatment. . . . **PROCTOR & SCHWARTZ, INC.,** Philadelphia, Pa.—Has transferred its branch service and reclothing shop facilities from Spartanburg, S. C., to Lexington, N. C. . . . **PUTNAM CHEMICAL CORP.,** Beacon, N. Y.—Has named G. A. Wolff manager for polymer sales. . . . **J. O. ROSS ENGINEERING DIV., MIDLAND-ROSS CORP.,** New York, N. Y.—Is opening a new sales office in Mobile, Ala. . . . **SACO-LOWELL SHOPS,** Boston, Mass.—Has moved its International Div. from Boston to Easley, S. C. . . . **SANDOZ, INC.,** New York, N. Y.—Has named E. J. Lancaster, Jr., manager for the newly created sales district covering most of South Carolina and Georgia, Alabama, and eastern Tennessee. His headquarters will be in Charlotte, N. C. A. W. Spencer has been promoted to supervisor of chemical sales for the Charlotte, office. J. H. Emerson has been named representative there. **SCOTT TESTERS, INC.,** Providence, R. I.—Has named Herman Marsden exclusive British agent. . . . **SINGER MFG. CO.,** New York, N. Y.—Has signed an agreement to buy all stock of Cobble Bros. Machinery Co., Inc. and Cobble Bros. Sales Co., Inc., Chattanooga, Tenn. . . . **SUPREME KNITTING MACHINE CO.,** Ozone Park, N. Y.—Has appointed Monroe Machinery Sales Co., Monroe, N. C., Southern sales and service representative. . . . **TERRELL MACHINE CO., INC.,** Charlotte, N. C.—Has been named exclusive sales agent for the glass-fiber reinforced plastics made by Benray, Inc. . . . **TORRINGTON CO.,** Torrington, Conn.—Has started operations at its new plant in Walhalla, S. C. . . . **WATSON-WILLIAMS MFG. CO.,** Millbury, Mass.—Has sold its plant to Felters Co., Boston, Mass.

TRY THIS on your Dry Cans and 30" Slasher Cylinders

We'll gladly furnish a pair of these units for 90-day obligation-free trial in your mill. The Type SB2P is self-supporting, completely packless, needs no lubrication or adjustment. The Johnson Syphon Elbow permits the use of two straight pipes instead of an unwieldy curved syphon pipe, is hinged to pass right through the joint.



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First in the Textile Industry

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Shows self-supporting Johnson Joints for all needs . . . on print cans, calenders, compressive shrinkage ranges, big 5' and 7' cotton slashers, dry cans, etc.

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Automatic Machinery For Cleaning And Refinishing QUILLS And BOBBINS

J. M. NASH Company, Inc.
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"Special Finishing Machines Since 1890"

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- MODERNIZATION PROGRAMS
- PLANT LAYOUTS
- COST SYSTEMS
- COST REDUCTION REPORTS
- WORK LOAD STUDIES
- MANAGEMENT PROBLEMS
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RALPH E. LOPER CO.

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Specializing in Textiles Since 1914

CIRCLE 259 ON READER SERVICE CARD

NEWS ABOUT MEN

David E. Arthur has joined Malden Mills as manager of the firm's Lawrence, Mass., plant.

Charles E. Bean, Jr., has been appointed foreman, Hanes Hosiery Mills Co., Winston-Salem, N. C.

H. E. Buchanan and **Pete R. Gilbert** have been promoted to foremen of knitting, Hanes Hosiery Mills Co., Winston-Salem, N. C.

William M. Butler has resigned as general manager, Hoosac Mills Corp., North Adams, Mass.

Steve Cooper has been appointed assistant department head of the knit-goods department, M. Lowenstein & Sons, Inc., New York, N. Y.

Howard D. Corkum has retired as director of research for the Willimantic plant of American Thread Co., New York, N. Y.

Howard P. Derrickson has been named executive vice president of Baltic Mills Co., Baltic, Conn.

Russell DeWitte has been elected vice president of United Piece Dye Works, Lodi, N. J.

Alan T. Dickson is the new vice president and director of manufacturing, American & Efird Mills, Mt. Holly, N. C.

Arthur R. Edge, III, has been promoted to superintendent, Hillside plant, Callaway Mills Co., La Grange, Ga.

David H. Fields will be named director of research for the Willimantic, Conn., plant of American Thread Co., New York, N. Y.

C. L. Fleming, Jr., has been appointed office manager at the Stonewall Div., Erwin Mills, Stonewall, Miss.

William Flinchum has been appointed foreman, Hanes Hosiery Mills Co., Winston-Salem, N. C.

DR. EDWIN L. LOTZ has been appointed vice president of research and development of Hess, Goldsmith & Co., Inc., New York, N. Y.

CHARLES M. TRAVIS has been appointed vice president of the Industrial Products Div., of Hess, Goldsmith & Co., New York, N. Y.

R. G. Fox, Jr., will become general manager of distribution for American Thread Co., New York, N. Y.

Richard E. Gardner has been appointed foreman, Hanes Hosiery Mills Co., Winston-Salem, N. C.

Joseph R. Greco was elected vice president of Cooley, Inc., Pawtucket, R. I.

Coy H. Hamilton has been appointed assistant manager of the Albany, Ga., mill of Coats & Clark, Inc., New York, N. Y.

Quentin L. Harvell has been appointed director of market research and promotion for the Burlap Council of the Indian Jute Mills Association.

Klara Havas has been appointed as designer-stylist for Fair-Tex Mills, Catasauqua, Pa.

Now—EASTERN'S Flying Freighters offer

OVERNIGHT DELIVERY

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New York—Atlanta—New Orleans—Mobile—Houston
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- Reserved space on every Freighter flight.
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In addition, Eastern offers freight space on over 400 daily passenger flights—including DC 8-B Jets and Prop-Jet Electras—to 128 cities in the United States, Canada, Bermuda, Puerto Rico and Mexico.

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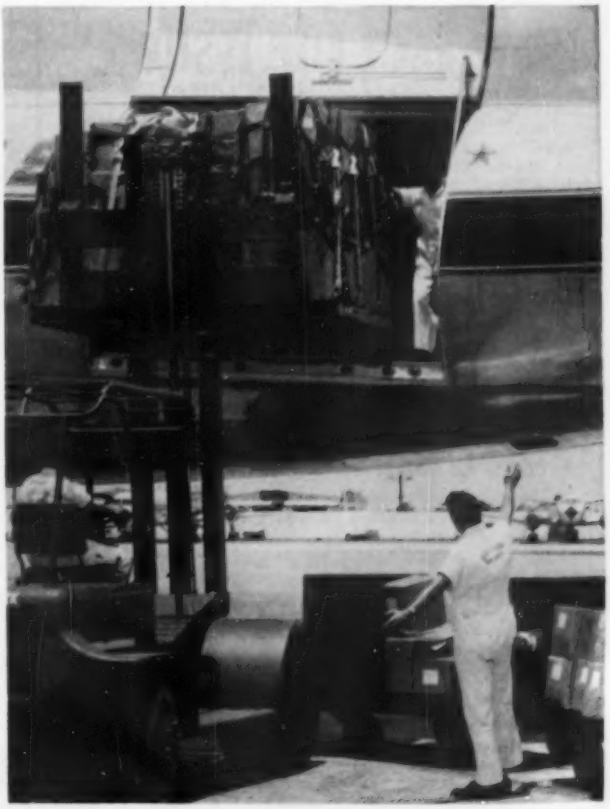

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NEW FACT FILE ISSUE . . .

Contains these features . . .

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36 pages of up-to-the-minute, practical know-how to be put right to work in solving your daily mill manufacturing problems

ENGINEERING & MAINTENANCE

16 pages of time-saving, dollar-saving charts, tables, formulas for achieving efficient operation all in one easy-to-get-at section

CHEMICAL TREATMENT & FINISHING FACTS

16 pages of useful, hand-book type information for those engaged in bleaching, dyeing, printing or finishing

CLASSIFIED DIRECTORY

The most complete, comprehensive listing of companies supplying New Machinery Supplies & Services ever published. Manufacturer's name, complete address and the page or pages on which his ad appears are contained under each appropriate heading—another FACT FILE exclusive! Advertiser's listings, with page reference, will appear in bold-face type.

NEW! HARDBOARD COVERS

Handsome, long-wearing, by popular demand . . . for the 1960 FACT FILE ISSUE, the reference book that gets 12 months hard service

STEPHEN DUNTON (left) and J. FRANK PRATTE (right) have been elected as vice presidents of Chicopee Mills, Inc., New York, N. Y.

Dr. John P. Hollihan is now director of the Stevens Central Research Laboratory, Garfield, N. J., a division of J. P. Stevens & Co., Inc., New York, N. Y.

Don S. Holt has been named vice chairman of Cannon Mills, Inc., New York, N. Y.

E. Harris Howard, 3rd, has been elected a director of Cooley, Inc., Pawtucket, R. I.

John L. Hutchinson, Jr., executive vice president of Peerless Woolen Mills Div. of Burlington Industries, Inc., Greensboro, N. C., has resigned.

L. Hart Jordan will become manager of the Oakland plant of The Kendall Co., Newberry, S. C.

Gary Keeble has been promoted to plant engineer at the Hillside plant of Callaway Mills Co., La Grange, Ga.

Jack Leach has been named to the newly created position of technical director of Burlington Industrial Fabrics Co., New York, N. Y.

Charles D. Livengood has been appointed foreman of looping, Hanes Hosiery Mills Co., Winston-Salem, N. C.

Edward C. Lobdell has retired from Spring Cotton Mills plant at Fort Mill, S. C.

William G. Marsden has been named treasurer of Baltic Mills Co., Baltic, Conn.

Robert C. McAloney has been appointed assistant director, Purchasing Dept., Coats & Clark, Inc., New York, N. Y.

Frederick H. McAlpine has retired as vice president of Sayles Finishing Plants, Inc., Saylesville, R. I.

George P. McClenaghan, vice president of J. P. Stevens & Co., Inc., New York, N. Y., has been elected president of the South Carolina Textile Manufacturers Assn.

Allen R. Merrill has been appointed plant manager of the Celanese Fibers Co.'s spun-yarn plant in Burlington, N. C.

Alfred G. New has been named vice president and general manager of the Lockhard (S. C.) plant of Monarch Mills, Union, S. C.

Ramon V. Nicholl has joined Callaway Mills Co., LaGrange, Ga., as methods analyst.

PAUL F. COLLINS has been named assistant product director in the gray-goods division of Chicopee Mills, Inc., New York, N. Y.

Robert W. Philip has retired as vice president of Callaway Mills Co., La Grange, Ga.

I. S. Pitts, Jr., general manager of the Union plant of Monarch Mills has been named vice president of Monarch Mills, Union, S. C.

Joseph Rulli has been elected assistant vice president of M. Lowenstein and Sons, Inc., New York, N. Y.

Robert W. Shadd has been named a director of Cooley, Inc., Pawtucket, R. I.

E. B. Shaw has been elected president of American Thread Co., New York, N. Y.

M. E. Sibley has been named executive vice president of manufacturing and division manager of Peerless Woolen Mills, Rossville, Ga.

Arnold M. Sookne has been named recipient for the 1960 Olney Medal of the American Association of Textile Chemists and Colorists.

Julius Stern has resigned his position as president and treasurer of Marum Knitting Mills, Inc., Lawrence, Mass.

Roy M. Stephens, vice president and general manager of Dan River Mills, Inc., Danville, Va., has been elected to the board of directors of Woodside Mills Inc., Greenville, S. C.

W. H. Suttenfield has retired as vice chairman of the board and New York office manager of American & Efird Mills, Inc., Mount Holly, N. C.

William A. Taylor was elected vice president of Cooley, Inc., Pawtucket, R. I.

Donald B. Tansill, chairman of the board of M. Lowenstein & Sons, Inc., New York, N. Y., has relinquished that post, while regaining the post of consultant and director in the firm.

J. Raeford Tuttle has been appointed foreman, finishing, Hanes Hosiery Mills Co., Winston-Salem, N. C.

George F. Watson has been appointed general superintendent of Fulton Cotton Mills' gray-mills division, Atlanta, Ga.

Stanley Weil has been elected assistant vice president of M. Lowenstein & Sons, Inc., New York, N. Y.

Keith E. Wells has been appointed director of styling for Callaway Mills, Inc., La Grange, Ga.

John E. Williams and **Robert C. Wilkie** have been named vice presidents of Ludlow Mfg. & Sales Co., Needham Heights, Mass.

Kurt J. Winter has been named chairman of the first Technical Council of the AATT.

OBITUARIES

Harold M. Chase, 88, retired director of research of Dan River Mills, Inc., Danville, Va.

Ernest J. DeCamps, 78, retired treasurer of Pelham and Batesville Mills, Pelham, S. C.

Edward W. Dewey, 70, retired treasurer and general manager of the H. E. Bradford Co., Inc., Bennington, Vt.

George L. Efird, 57, night superintendent for Wiscassett Mills Co., Albermarle, N. C.

Walter H. Glenn, Sr., 54, retired manager of Glendale Mills, Spartanburg, S. C.

R. C. Heyward, 82, retired superintendent of Rockingham Mills, Rockingham, N. C.

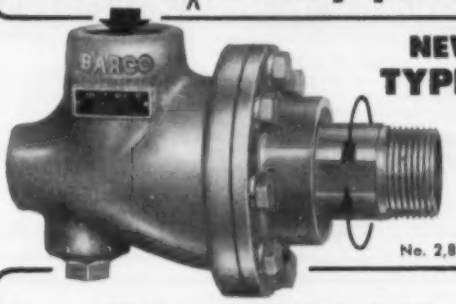
Israel Korsh, 76, textile manufacturer with headquarters in Philadelphia, Pa.

Francis R. Reynolds, 46, president, Reynolds Knitting Mills, Inc., Norristown, Pa.

Ira J. Rosen, 50, president of Northwick Mills, Inc., Dalton, Ga., and Concord Mills, Cartersville, Ga.

Harry Wexler, 75, president, Wexler Knitting Mills, Philadelphia, Pa.

Need a Better rotary joint?



NEW TYPE C

Patent No. 2,836,439

-it's BARCO!

For countless applications, Barco's new Type C Rotary Joint will give you the best operating records you've ever had—*and for LESS COST!*

RESISTS SEAL RING BREAKAGE—The spherical seal ring is under compression, not *tension*, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.

WIDE SPACED BEARINGS—Two, instead of one . . . increased bearing area. No lubrication required. Lowest friction.

MULTI-USE—One basic style for all services, single flow or syphon flow, quick availability from LOCAL STOCKS.

200 P. S. I. STEAM RATING—Heavy duty service at *no extra cost.* Eight sizes, ½" to 3". *Send for new Catalog 310 today.* **BARCO MANUFACTURING CO., 534J Hough Street, Barrington, Illinois.**

CIRCLE 261 ON READER SERVICE CARD

CHAS. T. MAIN, INC.
Engineers

TEXTILE MILLS AND OTHER INDUSTRIAL PLANTS

BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

ELECTRICAL, STEAM, DIESEL AND HYDRAULIC ENGINEERING
MACHINERY REORGANIZATION
WATER SUPPLY
INVESTIGATIONS
REPORTS AND APPRAISALS
CONSTRUCTION SUPERVISION

CIRCLE 262 ON READER SERVICE CARD

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It will help us to keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

Circulation Manager
TEXTILE WORLD,
330 West 42nd St. New York 36, N. Y.

Please change the address of my Textile World subscription.

Name .....
Old Address .....
New Address .....
New Company Connection .....
New Title or Position .....

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

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Customer Service Engineers

Continued expansion and diversification within the Celanese Fibers Company has developed the need for several outstanding Customer Service Engineers.

The ideal candidates will have from 5 to 10 years varied experience with synthetic fibers, preferably in filament processing, spun yarn processing and dyeing and finishing. A BS degree in textile engineering, manufacturing or chemistry plus proven ability to work independently are additional requirements.

To the right man we can offer excellent advancement opportunities, a full benefit program and salary commensurate with experience. Send your resume in confidence to Mr. Gerald J. Kiefer, Section 121.

Celanese FIBERS COMPANY

A division of Celanese Corporation of America

P. O. Box # 1414 Charlotte 1, N. C.

DYEHOUSE SUPERINTENDENT

Unusual management opportunity for man with proven experience in dyehouse operation. Position with progressive rawstock and top dyehouse in delightful North Carolina city of 100,000 population.

Applicant should have previous experience as dyer with responsibility for production, cost and final color approval. Salary commensurate with experience. Excellent company benefits and further opportunities. Relocation expenses.

Kindly write stating: Complete work history, age, references and qualifications.

P-4761, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Chemical or Mechanical Engineer

A Chemical or Mechanical Engineer interested in a position in the sales department contacting prospects in high temperature application.

Please reply in writing to:

Mrs. C. Murphy
HAVEG INDUSTRIES, INC.
900 Greenbank Road Wilmington 8, Del.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

MANAGER'S ASSISTANT

An opportunity for a man with previous textile supervisory experience. Position to assist plant manager of progressive fiber processing plant and dyehouse. Previous experience in fiber technology, management, and costs. Mature judgment more important than college degree. Age 25 to 40 years.

Location in large delightful city in North Carolina. Relocation expenses. Excellent company benefits. Reply stating work history, age, references, qualifications and education.

P-4757, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

PROCESS ENGINEER

One Process Engineer who would be working on process development of high temperature material.

Please reply in writing to:

Mrs. C. Murphy
HAVEG INDUSTRIES, INC.
900 Greenbank Road, Wilmington 8, Del.

TEXTILE MACHINERY MFR.
BEARINGS MFR.
PAPER MFR.

Senior Engineer Technician
Employment Temporary or Permanent
In India

Send Resume to:
AMERICAN EAST INDIA CORP
25 Broadway, New York 4, N. Y.

Supervisor-Foreman Wanted

Yarn preparation and weave room boss for Ontario Woollen Mill. Good conditions. Must be top notch organizer and have knowledge in woollens.

P-4831, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

TEXTILE RESEARCH AND DEVELOPMENT CHEMIST

with formulating experience in processing oils, emulsions, amonionic surfactants. Opportunity for rewarding progress. Ideal working environment. Handwritten reply required, giving full details, background, availability, salary requirements, etc.

P-4763, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

DYER WANTED

Leading New England Knitting Mill desires experienced Dyer for night shift. Good salary, and benefits. Send resume. All replies confidential.

P-4898, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

COATING FOREMAN

For new knife coating plant in Charlotte, North Carolina area. Send complete resume and salary requirement.

P-4818, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITION VACANT

Progressive Tricot Plant in Canada requires for their new Dyeing And Finishing Dept. Manager-Dyer to take charge of whole operation. Excellent position for man with right qualifications. Reply P-4888, Textile World.

POSITIONS WANTED

Finisher on fine woolen and worsted fabrics with long experience, ability and successful record would like position as liaison between mill and New York office or trouble shooter. PW-4572, Textile World.

A long experience woolen carder also experience on woolen spinning frames would accept work as boss or second hand. Good references. PW-4883, Textile World.

Technical Commercial Sales Supervisor. Age 47. French origin, fluent English and Spanish, have travelled around world. Can build and manage mill. Experienced in Chemicals, Dyes, Pigments, Plastics, Textiles. References from top American and Swiss firms. PW-4788, Textile World.

SELLING OPPORTUNITY WANTED

Established Manufacturers Representative selling Automotive Industry seeks additional textile product for automobile body interiors. RA-4452, Textile World.

DON'T FORGET

the box number when answering advertisements. It is the only way we can identify the advertiser to whom you are writing.

LIQUIDATING

BORDER CITY MFG. CO., DIVISION OF SAGAMORE MFG. CO.

4—Aldrich Single Process Pickers 40", 1953
10—Whitin 40" Revolving Flat Cards
111—Whitin F Spinning Frames, 272 and 256 spindles, 3" gauge
12—Atwood Redraw Machines, 68 spindles, motor and drive, 1950
56—Universal #110 Uptwisters, up to 2 lbs. headless package, motor and drive, 1950
2—Universal 10B Ring Twisters, motor and drive, 1954
2—Whitin Twisters, 160 spindles, motor and drive
3—Sipp-Eastwood Warpers, 54", magazine creels, 1949
11—Johnson 7 can Slashers, 66" headway, 1949
1—Bachman-Uxbridge Gentle Air Slasher, model A, 85" headway
1—Barber-Colman Spooler, model KK, type C, 162 pockets
3—Abbott Quillers, 120 spindles, motor and drive, 1955
1—Cocker Indigo Dyeing Range, 1948, 142" wide
4—Venango SS Package Dyeing Units, 3-500 lb., 1-250 lb.
260—Draper XD Looms, 1947-1951, 54" reed Diehl and motor drives
16—Draper D Looms 66", cam type, motor and drive
3—Barber-Colman Portable Tying-In Machines, 1949
2—Blickman 10' Enclosed Stainless Steel Dye Boxes, motor and drive
15—Unistel Stainless Steel Dry Cans 50", 35 lbs. pressure
61—Norton Stainless Steel Dry Cans 48x23" dia. 30 lbs. pressure
28—Montford Double Acting Nappers, 30, 28 and 24 tolls, motor and drive
1—Parks & Woolson Hi-Speed Davidson Shear 66½" 1947
100—W Bore Copper Rollers 44", 45" and 46", 15" and 16" circumference

Republic

TEXTILE EQUIPMENT COMPANY

40 Worth Street, New York 13, N. Y. • COrtlandt 7-1590

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WE OWN AND OFFER FOR SALE

1 Warner Swasey Quad Pindrafter, Model 3600, New in Crate
1 S-L Pilot Plant SS-1 Spinning Frame, 4" Gauge, 48 Spindles, 1½" front roll for staples up to 9"
1 S-L 10x5 F-5 Slubber, 48 Spindles for staples up to 9"
2 S-L 10x5 F-5 Slubbers of 84 Spindles each
2 S-L 10x5 F-5 Slubbers, 120 Spindles each for staples up to 9"
2 S-L 10x5 of 120 Spindles with Whitin Interdraft for staples up to 3"
1 Universal #44 Roto-Coner with metal drum—60 Spindles
2 Foster 8" travis Cone Winders, Model 35A
1 Foster 102, 100 Spindles for 3"30' paper cones
1 S-L Derby Doubler for 40 ends of sliver
1 Foster Skein Winder of 60 Spindles with automatic adjustable wire Swift for winding 54" to 72" skeins of Hi Bulk or textured yarn onto 6" Travis paper cones or tubes. Machine like new.
30 Spindles Foster Model 77 Cone Winders.

H. C. SKELTON, INC.,
Textile Machinery
Telephone: HAZEL 7-3737
Union, South Carolina

CIRCLE 402 ON READER SERVICE CARD

WE OWN and OFFER

1—Uster Warp Tying In Machine 1950-80"
1—Barber Colman Model LS Ser. 156 M.D.
1—Barber Colman Model LC Ser. 144 H.D.
2—Sipp Eastwood 780 L.E. Mag. Cone Creels
1—Penn. Compressor 7½ x 5, 40 lbs. 15 HP
25—Milton All Steel Beams for 46" X.D.-24" Adjustable
10—Slasher Hook Reeds SS
1M—AMCO #5 Atomizer Units Complete
30—Walton Reconditioned Humidifiers 110V

"Kidde Tensions, Fibre Mill Box Trucks, Tote Boxes, Drop Wires, Heddles, Harness Frames, Bobbins, Motors"

PAWTUCKET MILL SUPPLY CO.
240 York Ave. Pawtucket, Rhode Island

CIRCLE 403 ON READER SERVICE CARD

LIQUIDATING

MODERN DYEING • FINISHING • PRINTING MACHINERY

Partial List

8—Print Machines, 6-8 color, 40"-64" widths.
1—Compressive Shrinking Machine, 56", rebuilt.
1—Continuous Bleach Range, junior size, stainless steel.
32—All Stainless Steel Dye Jiggs, 50", 60", 70" widths, enclosed and open.
30—Dye Becks, 2'-20' widths, all stainless steel, enclosed and open.
3—Enclosed Tenter Ranges, 100' long, 60"-70" widths.
1—60" Stainless Steel Steamer.
1—Set of 11-50" x 23" Stainless Steel dry cans, ball bearing.
2—50" 2 Roll Padders, ball bearing.
12—Scutchers, 50"-78" widths.
1—72" Semi Decator.
2—Singers, 60"-70" widths.
1—66" Hinnekins Boil Off Machine.
4—Extractors, 48"-60" baskets, stainless steel and brass.
12—86" Nappers, 20-36 roll, single and double acting ball bearing.
4—Votators, 2 cycle and 3 cycle.
3—Finishing Calenders, 50"-60" widths, 7½-30 ton pressure.
1—National 10 Fan Loop Dryer.

We welcome your inquiries.

SOUTHERN OFFICE
IPA SOUTHERN, INC.
610 S. Carolina Nat. Bk. Bldg.
Greenville, South Carolina
Tel: Cedar 2-3562

IPA

NORTHERN OFFICE
INDUSTRIAL PRODUCTS OF AMERICA
140 Market St., Paterson, N. J.
Sherwood 2-6614 Cable: Texindus

CIRCLE 401 ON READER SERVICE CARD

MODERN TEXTILE MACHINERY FOR SALE

WEAVING

12—C & K Big S6 Looms, 60", 2x1 box, 1949
26—C & K S6 Looms, 54", 4x1 box, 1948
12—C & K W3 Convert. Looms, 64", 4x1 box, 1939
13—C & K Jacquard Rug Looms 49", 204 hooks
3—H & W Elec. & Steam Yarn Conditioners—Model ST-3
1—Scott Model J Strength Tester, motor, yarn and cloth
2—Brush Elec. Yarn & Sliver Testers—1951
1—BC Portable Tying-In Machine, Model LC course count—1951

SPINNING

1—Abbott #65 Paper Cone Winder, 100 spdls., 8° 04' cone—1947
1—Universal #44 Rotoconer, 40 spdls., paper cone 90° 36' cast iron—1947
1—Universal #44 Rotoconer, 120 spdls., paper cone 9° 36' cast iron—1951
1—Whitin Roto Drafter, Model A4, 14" coils—1955
2—Smith Drum Stainless 500 lb. Package Dye—1948
1—Reiter Comber, 6 heads, 12" coiler—1952
1—Aldrich Rayon Picker, 2 beaters, 40" motor
2—Foster Model #23 Paper Cone Winders, 60 spdls., 1952
4—H & B Spin. Frames, 200 spdls., 4½" ga., pneumafil, 1947
2—Proctor & Schwartz Non Woven Units, complete—1954

DYEING and FINISHING

1—Morrison Continuous Stainless Williams Dye Range; 15 ton Padder, 2 Williams Units, 3 Wash units; 5—5 ton Micro-Set Squeezers, 1948
1—R.H. Stainless, 2 compt. Washer, 80" squeezers, 10 HP
1—V. V. Tensionless Stainless Dye Jigg 72" wide—1946
1—Morrison Micro-Set Padder, 60" wide, 8 ton, DC motor
1—Cook PN Pneu. Padder, 60" wide, 5 ton
1—Verduin Hyd. Calender, 60", 3 B.B. rollers, 40 Ton—1950
1—Meadows Hyd. Embossing Calender 72" wide, 25 ton—1949
1—Verduin Coating Unit, 64" w/gas oven 30', 1952
4—R.H. Encl. S.S. Dye Boxes, 16' wide, 51" deep
3—R.H. Encl. S.S. Dye Boxes, 10' wide, 51" deep
4—R.H. Van Doorne S.S. Encl. 12' Dye Boxes, 45" deep
3—Morrison Pneu. 15 ton Padders, 60" wide
1—P & S Loop Dryer 60', 112" stick, 9 fans—1948
1—P & S Loop Dryer 60', 102" stick—1948
1—A & G Air Lay Dryer, 60' x 64" wide—1948
1—Butterworth S.S. Vat Steamer, 10' long, 50" wide
3—R.H. S.S. Encl. Rope Washer, 10' wide—1948
2—R & L 8' S.S. Encl. Dye Boxes, 60" deep
1—James Hunter 8' S.S. Dye Box with Butterworth enclosure
2—Smith Drum S.S. Package Dye Machines, 100 lb. capacity
1—Totally enclosed #5 Reeves Drive

ALLIANCE

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APPRAISALS • TEXTILE MACHINERY • LIQUIDATIONS

37 NORTH 3RD STREET • ALLENTOWN, PENNSYLVANIA • HEMLOCK 4-4887-8

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WE OWN & OFFER FOR SALE THE MACHINERY & SUPPLIES OF

YARN THROWING CO., HOPE, R. I.

10—Universal Model 501 Twisters
8—Atwood Model 200 Redraws
8—Atwood Model 110 Twisters
10M—Shafts—4¾" x 5"
2—Foster Mod. 102 Winders
Smith Drum Skein Dyers
3—Arnold Covering Machines
6—Atwood 10B Doublers
2—Hdless. Pkg.—5-501
10M—Phen. Spools—6" x 3½"
5—Toledo Dial Scales
1—Fletcher Doubler—4¾" Rings
20M—10B Spools—6" T. x 4⅜" B
100—Univ. & Foster Coners

BOBBINS—SPOOLS—QUILLS—*All Sizes & Types*

PENNSYLVANIA SPOOL & EQUIPMENT CO.

425 LEHIGH ST. ALLENTOWN PA. Phone 3-7545

Complete mill for making linen thread. Complete mill for a slitting & reinforcing metallic yarns.

CIRCLE 405 ON READER SERVICE CARD

TEXTILE AUXILIARIES INC.

"SPECIALIZING IN BLEACHING, PRINTING, DYEING AND FINISHING MACHINERY"

1—72"—2 Roll Simpson Cut-Off Winder.
1—Van Vlaanderen B.B. 50" Padder, 18" diameter rolls.
1—6 Color R. B. & F. 44" Printing Machine, complete with Backrigging, Dry Cans, D.C. motor, etc.
1—60" x 60" Straight-Away Pin Tenter with 55' Andrews & Goodrich Housing, 3 Canopies for high temperature.
1 & 2 Roll 54" Winders & Batchers.
1—12' B.B. Dye Beck—Shallow.
50 & 80 Gallon Copper Jacketed Tilting Kettles.
Reeves Drives—all sizes, open and closed types.
1—25 H.P. "B.T.A." Meter 220/440 Volt, A.C.
Scutchers—all widths.

We carry spare Padder & Calender Rolls all sizes, also motors from 1 HP to 100 HP.

These are only a few items: *For Detailed List:* *Write, Wire or Phone:*

Dexter 1-9650 Dexter 1-8837 146 West River Street

PROVIDENCE, R. I.

CIRCLE 406 ON READER SERVICE CARD

LOOMS WANTED

56 to 64 inch width. C & K "C" series, fully automatic. Prefer 4 x 1, would consider 2 x 1. Must accommodate 8¾" 3 ring quill (no less than 8" quill). Also need vari-speed Drive. 3 H.P. Prefer Slostrom.

W 4663 Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIRCLE 407 ON READER SERVICE CARD

FOR SALE

8—Extra Heavy-Brand New C & K, 15 Harness Head Motions, 1" spacing for Heavy Duty Work, never used.
1—60" Gas-Heated Embossing Machine, no Brass Shells.

Prices reasonable.

FERDINAND W. MOSTERTZ & SONS, Inc.
Tulip & Dauphin Sts., Philadelphia 25, Pa.

CIRCLE 408 ON READER SERVICE CARD

FOR SALE:

(1) Fales and Jenks trap twister completely rebuilt by Whitin in 1950 with Whitin trap, spindles, rails etc. 4¼" ring, 12" traverse.
(1) Saco Lowell late model 3½" ring 8" traverse Twister

Wanted to purchase
(2) two cylinder worsted cards, (2) Haidsworth screw pin drafters.

FS-4840, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIRCLE 428 ON READER SERVICE CARD

FOR SALE

One, 84-Inch Double Thread Fales Sewing Machine with 4-T-Type Needle Sections. Each needle bar having 6-needle drills on 1-inch cylinders. Stitch lengths ⅛". Serial No. 501. Arrange for Motor Drive—but exclusive of motor. Machine used slightly. Will sell at a bargain price.

STANDARD BAG COMPANY, Inc.
P.O. Box 286 Phone PArk 2-2681 Augusta, Ga.

CIRCLE 409 ON READER SERVICE CARD

$3,000,000 Liquidation:

Chemical Plant at Orange, Texas

Type 316 stainless steel tanks, kettles, heat exchangers, columns, stills, crystallizers, centrifugals, pumps, valves, etc.

WONDERFUL VALUES, SEND FOR LIST

PERRY EQUIPMENT CORP.
1430 N. 6th St. Phila. 22, Pa.

CIRCLE 410 ON READER SERVICE CARD

MODERN MACHINERY FROM OUR OWN STOCK!!

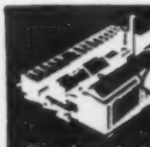
2—1958—Model 551 Superlofts—216 Sp. Machines
1—1953—V.V. 20 Ft. 24"-72" Open Clip Tenter
1—1954—Collins Full Nov. 60 Sp. 5½" G. TWISTER
19—1953—84" C&K W-3AC AUTO.—2x1 LOOMS
1—1955—HERMAS MOD. VSS SELVAGE SHEARING MACH.
1—1950—WHITIN SAMPLE 10x5—MOD. G8—28 Sp. ROVING FRAME

1—K.W.G. 500 Lb. Skein Dryer—S.S.
1—V.V. Semi-Decatur—3 Blankets
1—Hunter 76" Pad—2 Roll—pneumatic
1—V.V. 20 Ton 3 Roll Calender
1—Wet & Dry Shrinking Machine S. S.
1—Heinikens 12' Hooded Beck . . S. S.
1—R&L 3' Beck—T.E.—S.S.—60" Deep
1—Hunter 30" Beck—T.E.—S.S.—50" Deep
1—Curtin & Hebert Brushing & Sueding
3—30" S.S. Extractors—Fletcher
1—48" S.S. Extractor—Troy
2—Henrici S.S. Washers 40 x 84—2 Comp
2—Henrici S.S. Washers 40 x 94—3 Comp
1—Granger 6 Roll Chasing Calender
1—Sample McCreary Batcher
2—Obermeir Top Dye Kettles—30 Lb.
1—V.V. 70" Jig—T.E.—S.S.

500—SPINDLES 1957—SAABA UNITS—COMPLETE—
10,000 ALL ALUM. 1¼ LB. BOBBINS
SUPERLOFT—TAKE-UP—

1—R&L—1954—6 Ft.-60"—Dye Beck
1—1950—100 Sp. 2 Lb.—7" G. 10B
30—1953—D.D. Utility B.B. Twisters

4—1953 U.S. TEXTILE HI-SPEED REDRAWS—
Spindless—Emul. Throughs 88—92 Sp. Each—Like New



Wm. Rabinowitz & Sons

TEXTILE MACHINERY, BOBBINS & SUPPLIES

Gordon & Jordan Streets • HEmlock 4-9525 • Allentown, Pa. • Cable: RAB

ONLY PARTIAL LISTING . . . SUBJECT PRIOR SALES . . . SELECTED STOCK OFFERINGS

CIRCLE 411 ON READER SERVICE CARD

FOR SALE

Good Machinery—Low Prices

30—Drying Cans 80" x 20" dia.
2—Sipp E. Hy Speed Warpers 83".
2—Sipp E. Mag Cone Creels.
2—Air Perme-ator Humidifier Units.
1—VV 3 Roll Calender 60"
72—Spdle Whitin Schweiter Auto Quillers.
1—RB&F 44" 5 color print machine.
1—Hinnekins Moire Calender 50" New.
1—Hercules Extractor 50" Copper Basket.
2—88 Tru Shade 6' Dye Tubs, with 88 Hoods
1—Johnson Sizer, 5 Copper Cans 66" Wide.
1—Ingersol Rand 75 HP Air Compressor.

STAVE & KESSLER
106 Kearney Street
P. O. Box 1611 Paterson 16, N. J.

CIRCLE 413 ON READER SERVICE CARD

FOR SALE!

2—2 Color 40" Roller Printers
1—4 Color 42" Roller Printer
2—4 Color 46" Roller Printers
1—8 Color 44" Roller Printer
1—Plisse Range, 2 Color 40" Printer
2—Duplex 58" Compressive Shrinkers
1—Gerdler Duplex Votator
2—Winsor & Jerauld 60" Cloth Tenters
1—Parks & Woolson 50" Cloth Doubler

JAMES E. FITZGERALD
10 Purchase St. Fall River, Mass.
Tel. OS 8-5616

CIRCLE 414 ON READER SERVICE CARD

FOR SALE

MODERN MACHINERY—ATTRACTIVELY PRICED

1—BATCHER, Simpson type, 80", double knurled steel rolls.
1—High Pile BEATER, Mawaco, 65", tension leton, with 12 beater rods.
2—TAPE CONDENSERS, D&F., 60", 96 and 144 Ends, Single Rub, 4 Bank.
3—STOCK FEEDS, Bramwell, Sargent, 48", 60", with comb and knockoff roll.
3—CEILING FOLDERS, Carpet type, 55 to 63" width, with gear motor drives.
2—CLOTH GUIDERS mounted on stands, 76" and 80" maximum width.
1—NAPPER GRINDER, Roy, 100", with face and side grinding wheels.
1—INSPECTING Machine, C&M., 96" width, Inclined table, Motor Driven.
2—INSPECTING PERCHES, Vert. type, Folder, B.B. Motor, forward/reverse.
1—PIECE DYE KETTLE, S.S., R. Hunt, Tru-shade, 7' wide, with Squeeze Rolls.
1—LUMPER, Clark, 10" wide, B.B. Cylinder, Feed Table, Motor Drive.
1—BROADBAND LAPPER, P&S., 60", Model 602, with 10' Floor Apron.
1—LONDONIZING Machine, P&W., 80", Steam Box, S.S. Table, Blower, Windup.
1—STARCH MANGLE, 2 Roll, Brass and Rubber Rolls, 51" face x 15" dia.
1—NAPPER, Gessner, S.A., 26 V-Belt Driven Rolls, Self-Oiling Cylinder.
2—NAPPERS, D&F., D.A., 24 Roll, 72" and 80", Self-Oiling Cylinder, M.D.
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1—NAPPER, Woonsocket, D.A., 38 Roll, Ball Bearing, 80", Folder, M.D.
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REPRINTS:			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12			
R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26				
R27	R28	R29	R30	R31	R32	R33	R34	R35	R36	R37	R38	R39	R40				
R41	R42	R43	R44	R45	R46	R47	R48	R49	R50	R51	R52	R53	R54				

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ADVERTISEMENTS:				INSIDE FRONT COVER					INSIDE BACK COVER						BACK COVER		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
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109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126
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286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303
304	305	306	307	308	309	310											
SEARCHLIGHT:			400	401	402	403	404	405	406	407	408	409	410	411	412	413	414
415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432
433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455													
EQUIPMENT AND SUPPLY NEWS:				E1	E2	E3	E4	E5	E6	E7	E8	E9					
E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23				
E24	E25	E26	E27	E28	E29	E30	E31	E32	E33	E34	E35	E36	E37				
E38	E39	E40	E41	E42	E43	E44	E45	E46	E47	E48	E49	E50	E51				
E52	E53	E54	E55	E56	E57	E58	E59	E60	E61	E62	E63	E64	E65				
E66	E67	E68	E69	E70	E71	E72	E73	E74	E75	E76	E77	E78	E79				
NEW LITERATURE:				L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11			
L12	L13	L14	L15	L16	L17	L18	L19	L20	L21	L22	L23	L24	L25				
L26	L27	L28	L29	L30	L31	L32	L33	L34	L35	L36	L37	L38	L39				
L40	L41	L42	L43	L44	L45	L46	L47	L48	L49	L50	L51	L52	L53				
DYES & CHEMICALS:				D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11			
D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24					
ADVERTISERS' LITERATURE:				A350	A351	A352	A353	A354	A355	A356	A357	A358	A359				
A360	A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372	A373				
A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384	A385						
REPRINTS:			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12			
R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26				
R27	R28	R29	R30	R31	R32	R33	R34	R35	R36	R37	R38	R39	R40				
R41	R42	R43	R44	R45	R46	R47	R48	R49	R50	R51	R52	R53	R54				

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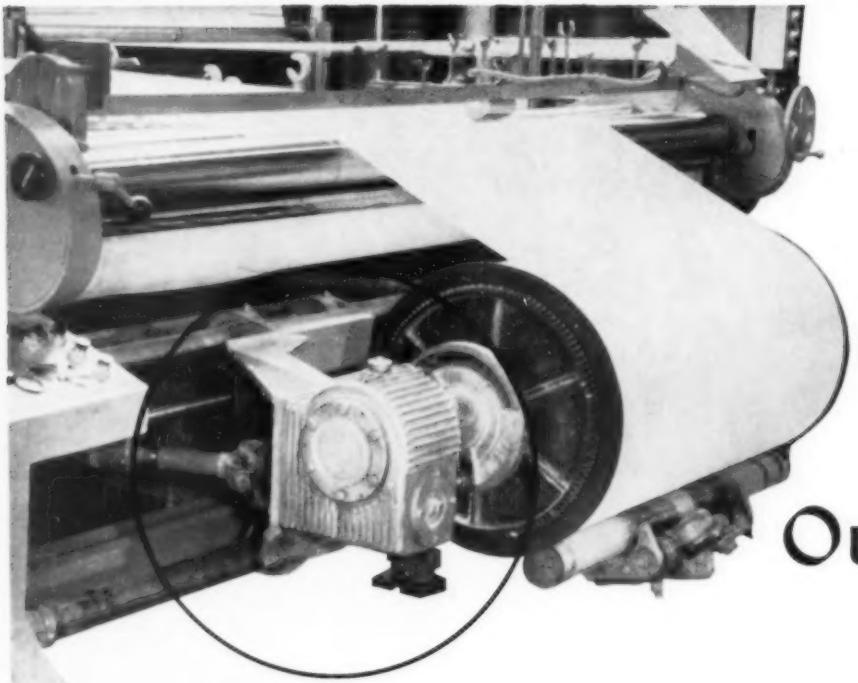

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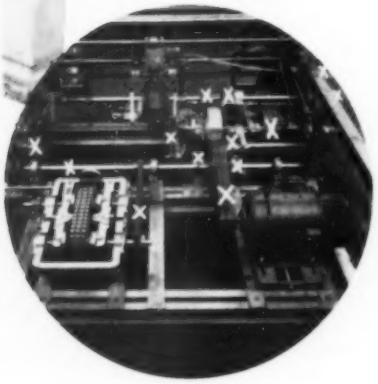

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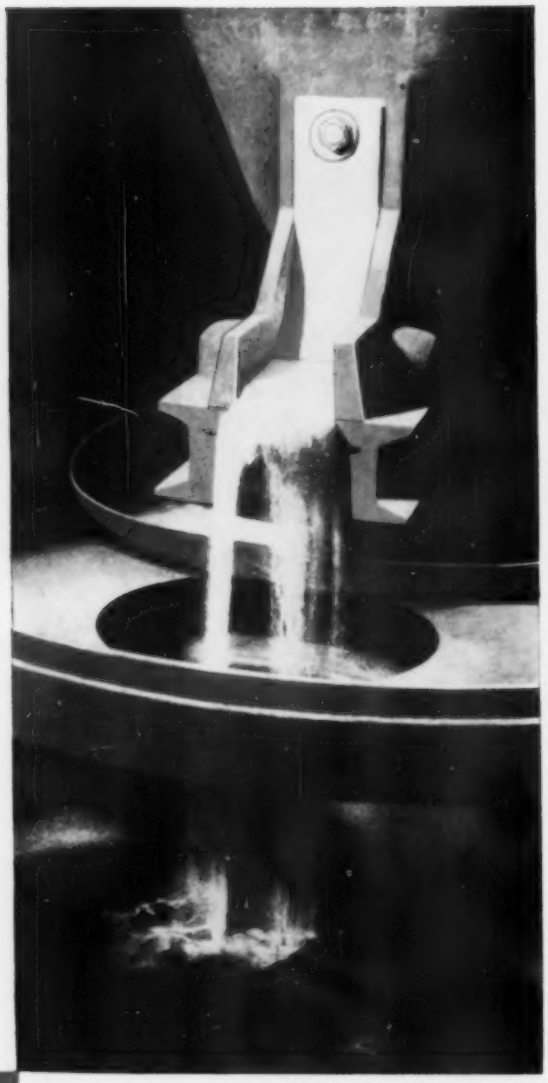

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